CASSETTE RECEIVER WITH GE & CD PLAYER

# RXD-24/24M

# SERVICE MANUAL

KENWOOD

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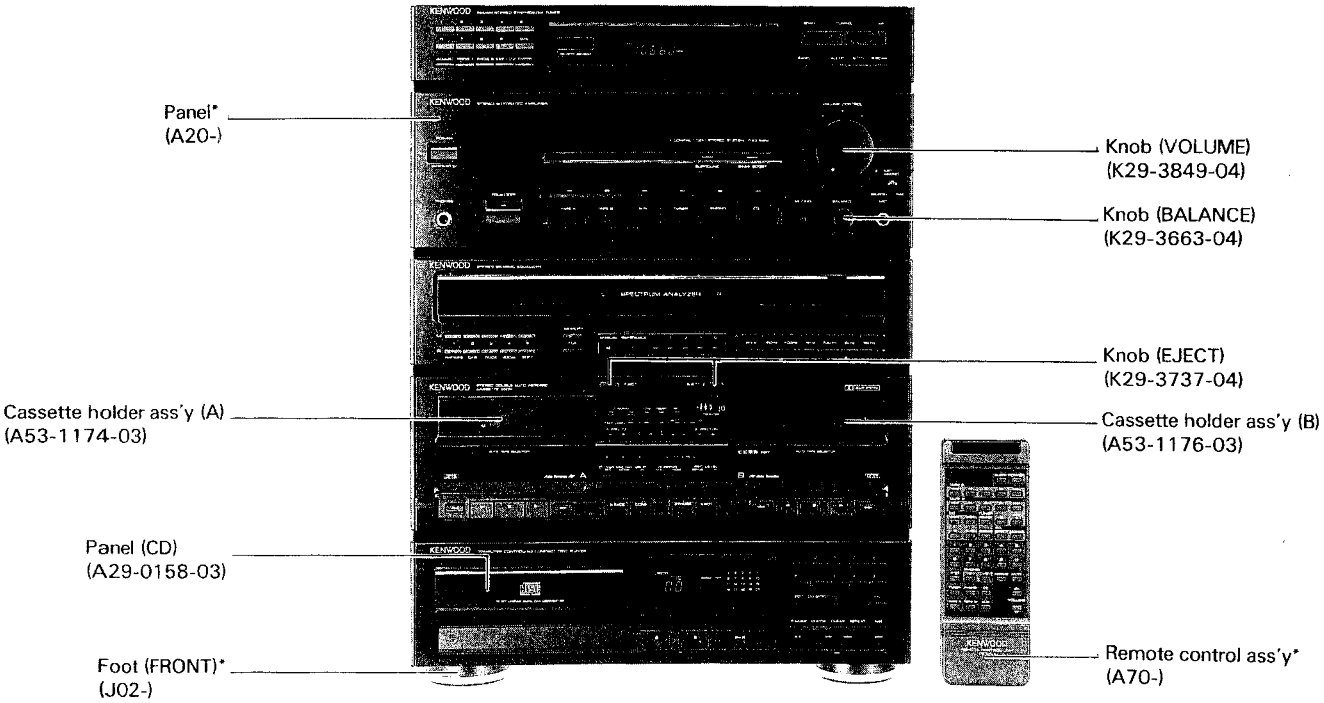

Panel*
(A20-)
Knob (VOLUME)
(K29-3849-04)
Knob (BALANCE)
(K29-3663-04)
Knob (EJECT)
(K29-3737-04)
Cassette holder ass'y (A)
(A53-1174-03)
Cassette holder ass'y (B)
(A53-1176-03)
Panel (CD)
(A29-0158-03)
Foot (FRONT)*
(J02-)
Remote control ass'y*
(A70-)

***Refer to parts list on page 133.**

## FEATURES AND SERVICING NOTES

### The features of and servicing cautions for the MIDI system are described below.

(1) The tuner, amplifier, GE decks, and CD blocks are integrated, so pay attention to the following wiring layout of the decks and CD blocks:

1) The head lead wires of cassette decks must be kept separate from 14 parallel leads (color: black) and PC board (X28) to prevent digital noise.
2) The lead wires on the primary and secondary windings of the power transformer must be kept as far from the PC board X28 and X32 boards as possible to prevent hum and radiation.
3) The 3 parallel lead wires and 11 parallel lead wires that are connected from connector CN6 on the X07 board to X32 board must be kept apart to prevent noise in the CD block.
4) The lead wire of connector CN18 on the X32 board must be kept apart from capacitor C9 to ensure that a defective disk cannot be read at low temperature.

(2) To listen to a test selector other than the deck and CD blocks using a timer, remove the cassette tape and CD disk.

(3) A TIMER PLAY key is not provided on the deck block. The TIMER PLAY mode can be entered when the TIME REC LED indicator is not on.

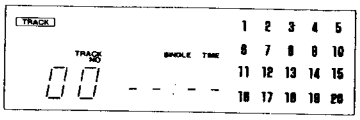
(4) The microprocessor is powered only if it is connected to an AC outlet. When soldering and replacing parts, disconnect the power cord from the outlet.

(5) The CD mechanism has no transport screw. During unit transport or movement, return the mechanism to the initial setting before switching the power OFF.

### Note related to transportation and movement

When this unit is to be transported or shifted, carry out the following procedure. (for protection of the internal mechanism)

1. **Turn the power ON without putting a disc in the unit.**
2. **Wait several seconds, and check that the display shown below appears.**


TRACK
TRACK NO
SINGLE TIME
00
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20

3. **Turn the power OFF.**

(6) Recording on metal tapes cannot be carried out.

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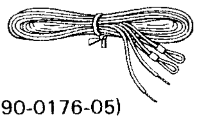
## Accessories

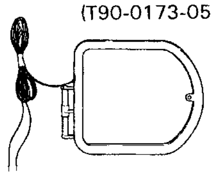
T-type (FM) feeder antenna × 1



(T90-0176-05)

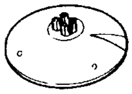
Loop antenna × 1

(T90-0173-05)

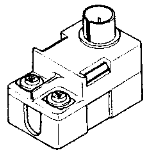


Antenna stand × 1

(J19-2815-04)

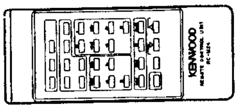


75 Ω/300 Ω
antenna adaptor × 1
(RXD-24 only)



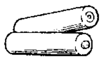
(T90-0177-05)

Remote control unit × 1



(A70-0325-05: X, M, Y
A70-0326-05: ET)

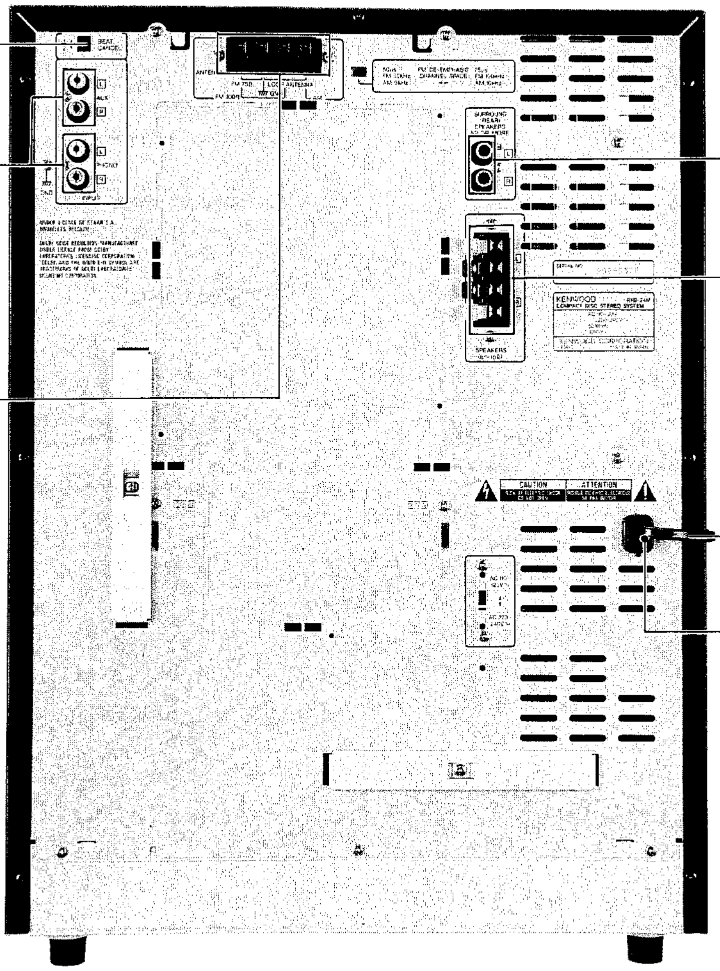
Battery (SUM-3, "AA" or "R6") × 2



In compliance with Federal Regulations, following are reproductions of labels on, or inside the product relating to laser product safety.

KENWOOD-Corp. certifies this equipment conforms to DHHS Regulations No. 21 CFR 1040. 10, Chapter 1, Subchapter J.

**DANGER: Laser radiation when open and interlock defeated. AVOID DIRECT EXPOSURE TO BEAM.**



Slide switch
(BEAT CANCEL)
(S31-2094-05)

Phono jack (2P)
(AUX/PHONO)
(E13-0255-05) ×2

Lock terminal board*
(ANTENNA)
(E20-)

Phono jack (2P)
(SURROUND)
(E13-0254-05)

Lock terminal board
(SPEAKER)
(E20-0459-05)

AC power cord*
(E30-)

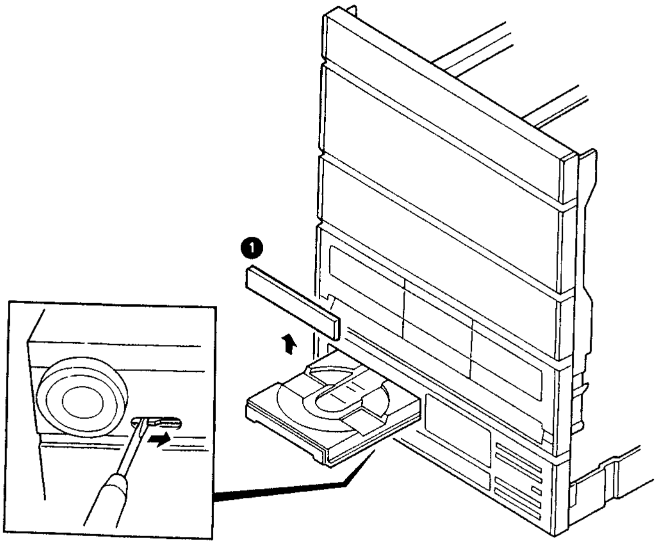
Power cord bushing
(J42-0083-05)

***Refer to parts list on page 133.**

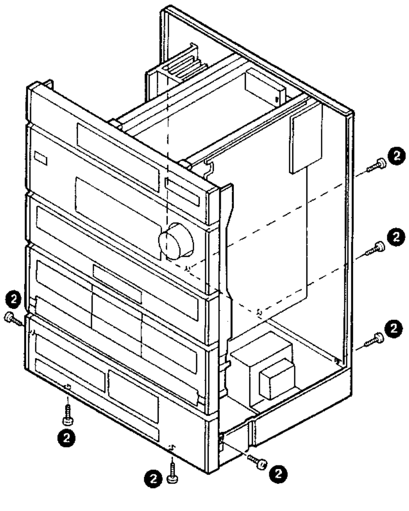
# DISASSEMBLY FOR REPAIR

## 1. How to Disassemble CD Player Section

1. Remove the panel of the tray. (When the power can't be turned ON, or when the tray doesn't be opened by pressing the OPEN key.) ❶



2. Unscrew 7 screws ❷ and lay down.

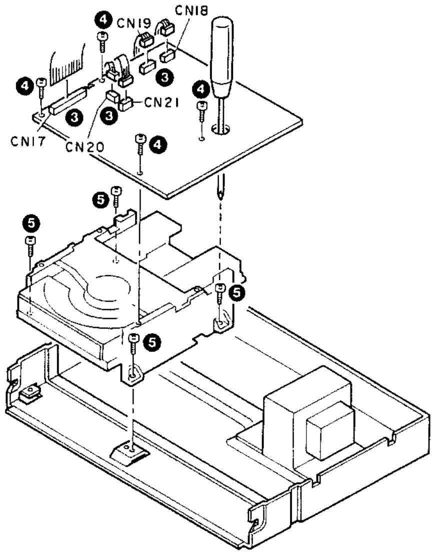


### 1-1. How to remove CD PC board ass'y (X32)

3. Remove 5 connectors ❸ and connector CN6 connected to X07 PC board. (If laser power check, this step is unnecessary.)
4. Unscrew 4 screws ❹ and PC board ass'y.

### 1-2. How to remove CD player mechanism

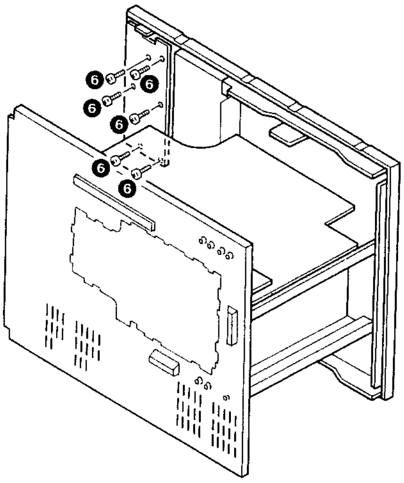
5. Unscrew 4 screws ❺ and remove the mechanism ass'y.
6. Remove pickup.



# DISASSEMBLY FOR REPAIR

### 1-3. How to remove CD-display PC board ass'y

7. Unscrew 6 screws (❻) and remove the PC board.



### 1-4. How to remove easily CD mechanism

- If you want to pick up the CD mechanism ass'y only, do the following steps.

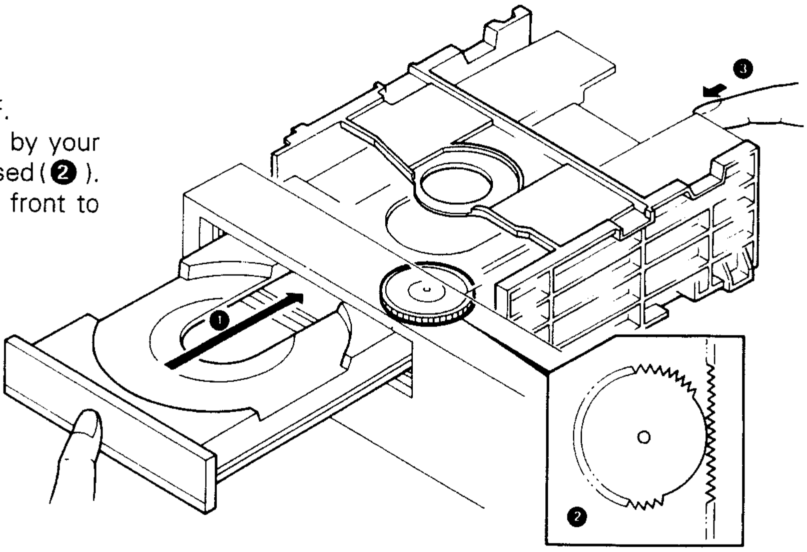
1. Remove the tray panel and hardware.
2. Remove the rear panel (refer to page 8, ❼).
3. Remove the 28-flat cable of CN17 on the X07 PC board.
4. Remove AC outlet. (If remove, push the projection of side of AC outlet.)
5. Unscrew 4 screws (refer to page 4, ❺) fixing mechanism ass'y and put it at the left side of RXD-24.
6. Put mechanism ass'y to its front side backward.
7. Connect the 28-flat cable of CN17 of the X32 PC board. (Make sure of terminal number and position of AC outlet.)

## 2. Removing and Installing the Tray

### 2-1. Removing the tray

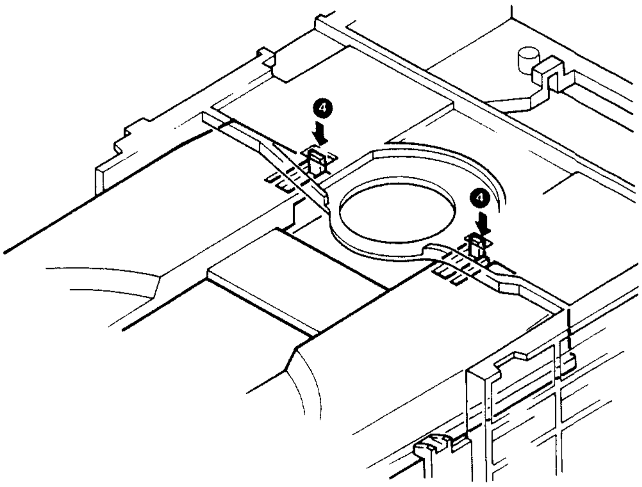
* Open the disc tray and turn the power OFF.

1. Push the tray gradually into the unit (❶) by your hand. In this condition, the gear will be released (❷).
2. Push the rear end of the tray toward the front to remove the tray until it stops (❸).

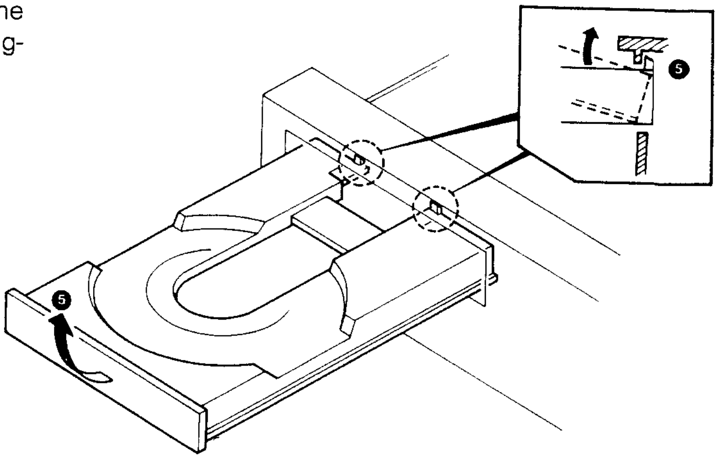


# DISASSEMBLY FOR REPAIR

3. Release the two stoppers (❹ ) and take out the tray front the unit.

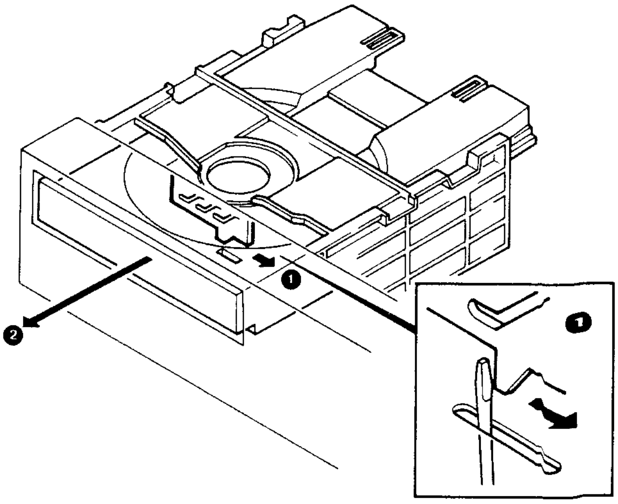


4. When removing the tray, release the stoppers in the direction of the arrow ( ❺ ) to prevent it from engaging with the sub panel.



### 2-2. When the power can not be turnte ON, or when the tray can not be opened by pressing the OPEN key

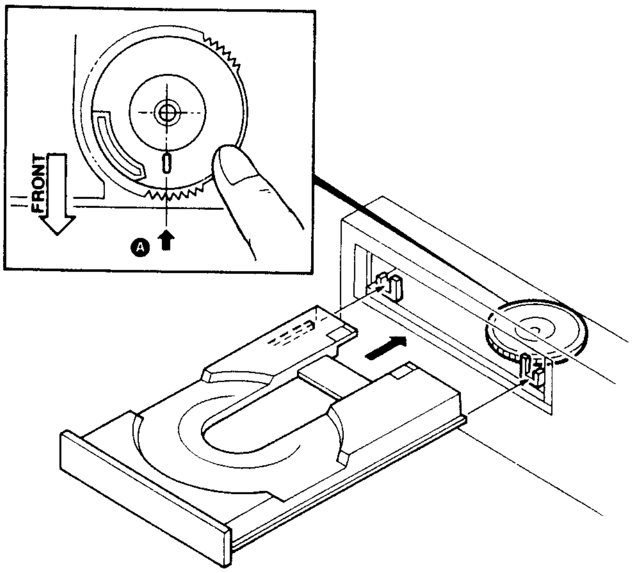
1. Insert the screwdriver into the hole located on the bottom of the unit, as shown in the diagram, and push the lever with the screwdriver ( ❶ ).
2. When the tray is comes out slightly, the gear is released. Then take out the tray toward the front ( ❷ ).



# DISASSEMBLY FOR REPAIR

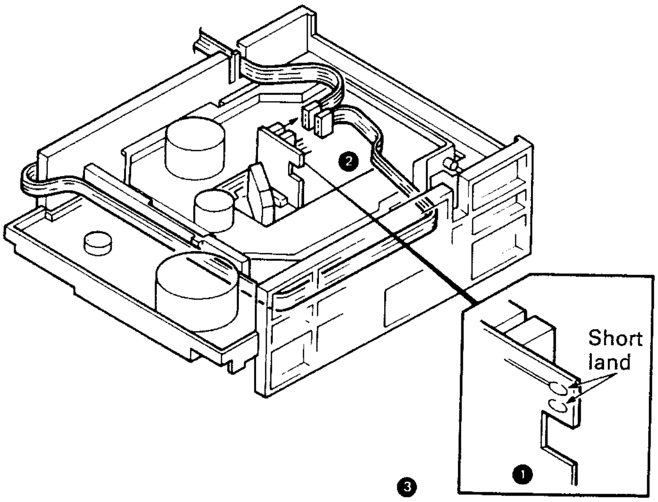
### 2-3. Installing the tray

1. Set the gear to the position (Ⓐ) shown in the diagram.
2. Insert the tray along with the guide rails on the both sides.

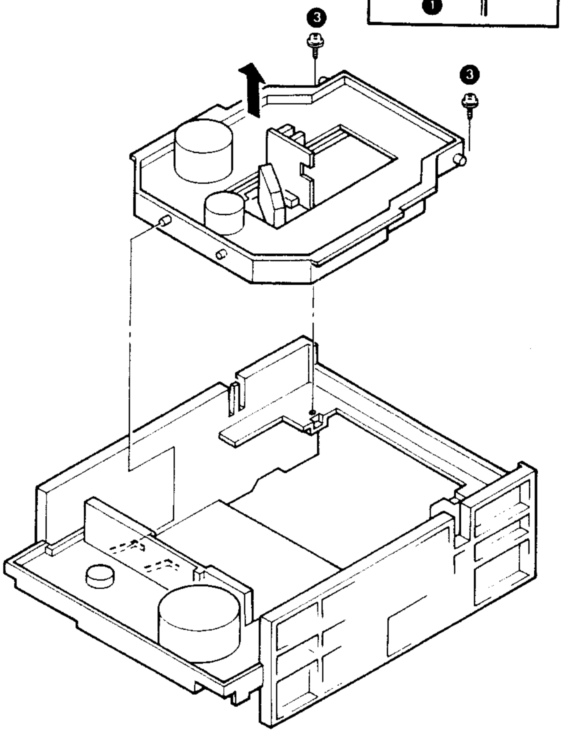


## 3. Removing the Pickup

1. Turn over the mechanism and short the short land of the pickup (❶).
2. Disconnect the two connectors (❷).



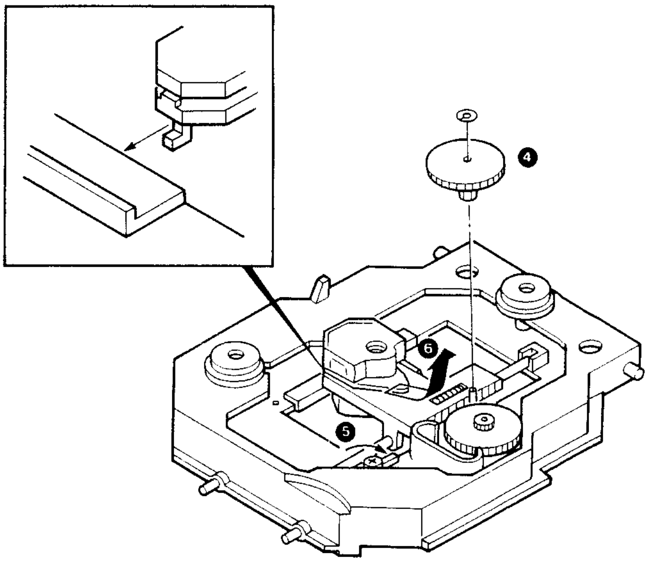
3. Remove the two screws (❸), then remove the MD assembly.



## DISASSEMBLY FOR REPAIR

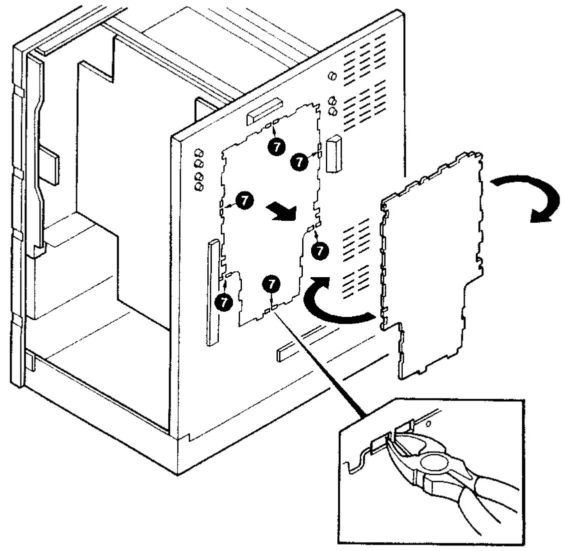
4. Remove the snap ring, then remove the gear ( ❹ ).
5. Remove the stopper ( ❺ ).
6. Remove the pickup in the direction of the arrow ( ❻ ).

**Note** : When installing the pickup, in the reverse order of disassembly.
Unsolder the short land after connecting the connector.

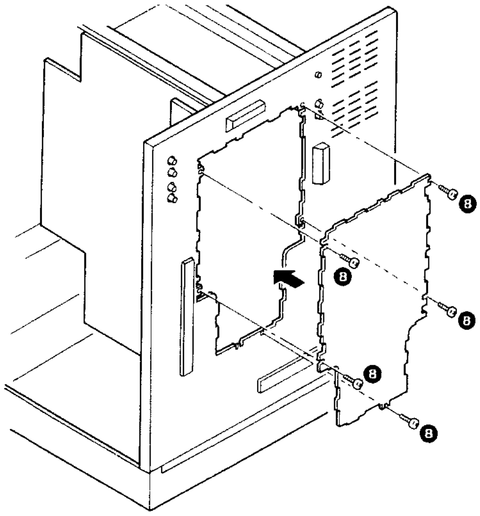


### 4. How to Remove the Rear Panel

1. Cut the 6 part (❼) of the rear panel (reparing rear panel).



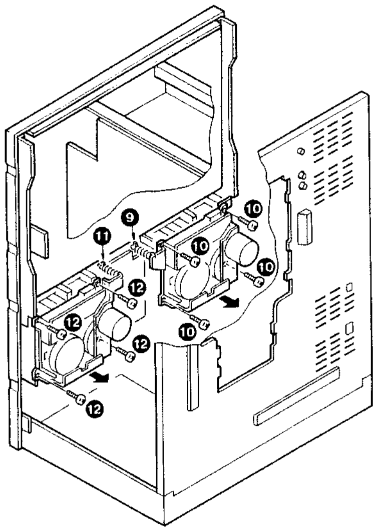
2. Turn the cut panel and install it on the rear panel with 5 screws (❽).



# DISASSEMBLY FOR REPAIR

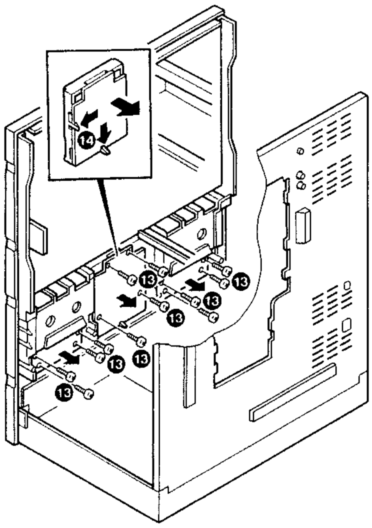
## 5. How to Disassemble Cassette Deck Section

1. Remove the eject spring ⑨.
2. Unscrew 4 screws ⑩ fixing the A mechanism ass'y.
3. Remove the eject spring ⑪.
4. Unscrew 4 screws ⑫ fixing the B mechanism ass'y.



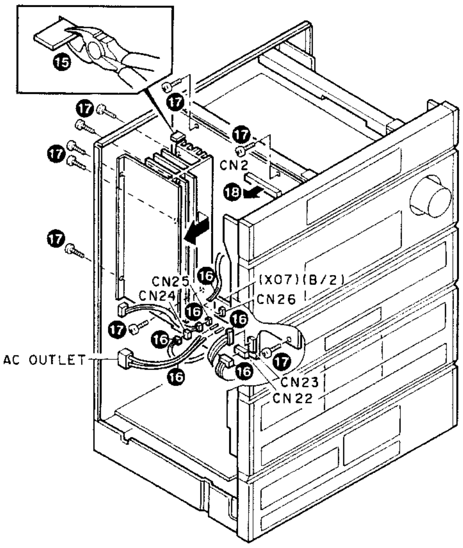
### 5-1. How to remove deck-display PC board ass'y

5. Unscrew 12 screws ⑬ and the PC board ass'y.
6. Slide the hooks ⑭ and remove the PC board ass'y.



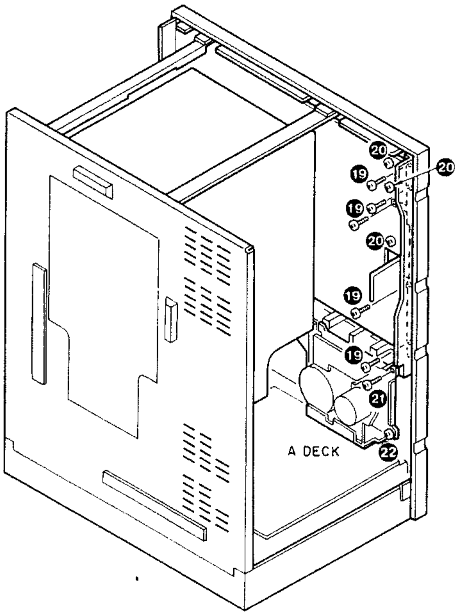
## 6. How to Remove Power PC Board Ass'y (X07)

1. Remove the reparing rear panel (refer to⑮).
2. Remove 5 connectors and 2 cords ⑯.
3. Unscrew 9 screws ⑰ and remove the connectors (CN2) ⑱ and PC board ass'y.



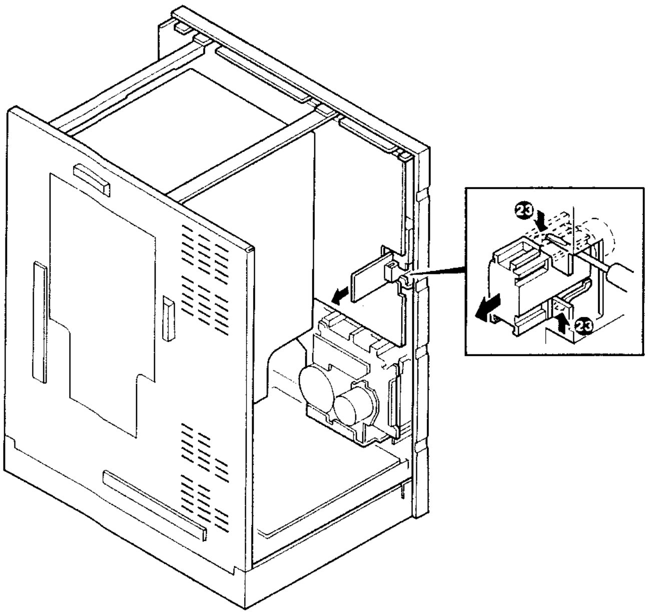
## 7. How to Remove PHONES Jack

1. Unscrews 5 screws ⑲ fixing the left frame of the front panel.
2. Loose 3 screws ⑳ fixing the left of the display PC board ass'y.
3. Unscrew the screw (left top) ㉑ and loose the screw (left bottom) ㉒.
4. Lift the X14 PC board and A cassette deck mechanism ass'y, and then remove the left side of the frame.

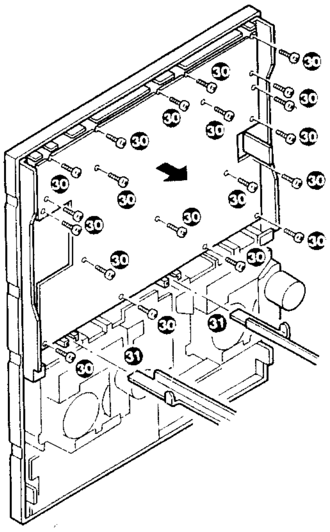


# DISASSEMBLY FOR REPAIR

5. Push the hook of PHONES jack with the screw driver and remove it ㉓.

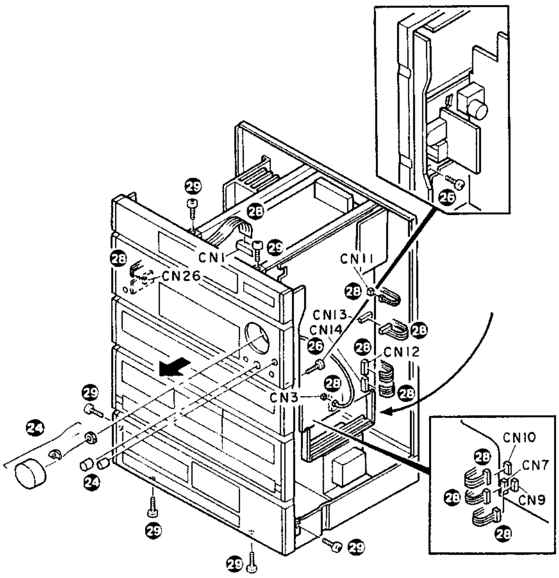


6. Unscrew 20 screws ㉚ and PC board ass'y.
7. When reinstalling the front panel ass'y, make sure of position of the 2 frame ㉛.



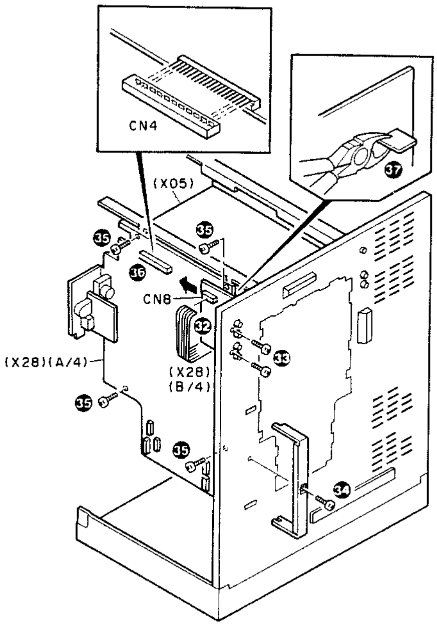
## 8. How to Remove Tuner and GE PC Board Ass'ies.

1. Remove the knobs (VOLUME, MIC, BALANCE) and hexagon nuts ㉔.
2. Unscrew the VR-mounting-hardware screw ㉖.
3. Remove the CD player tray panel (refer to page 4).
4. Remove 10 connectors ㉘.
5. Unscrew 6 screws ㉙ and remove the front panel.


29
28
CN1
29
28
CN26
CN11
28
CN13
CN14
26
28
CN12
28
28
CN3
28
29
24
24
24
29
29
29
26
CN10
28
CN7
28
CN9
28

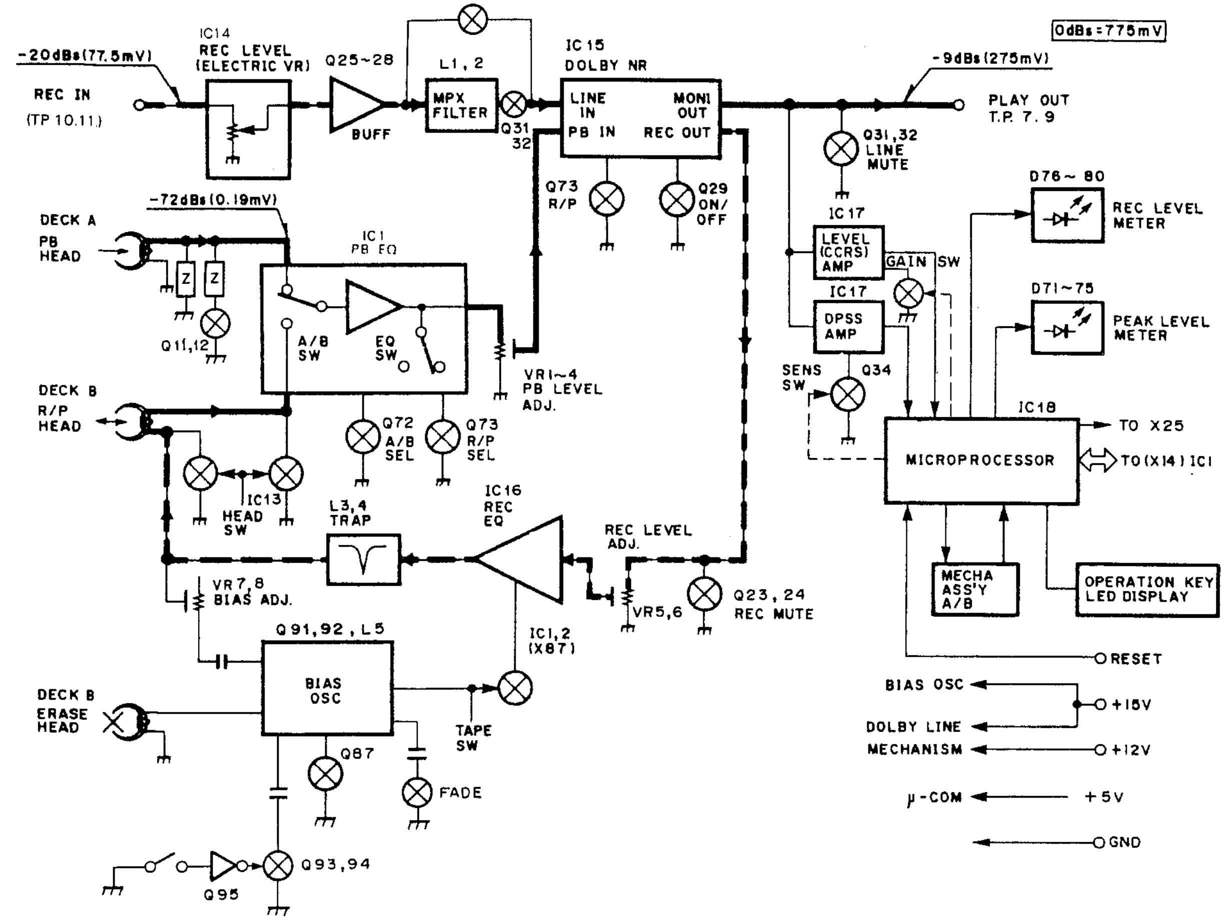
## 9. How to Remove Cassette Deck and GE PC Board Ass'ies.

1. Remove the front panel (refer to 8, 1~3, 5).
2. Remove the connector ㉜.
3. Unscrew the screw and remove the hardware ㉝.
4. Remove the 2 connectors ㉞.
5. Unscrew 5 screws ㉟.
6. Remove the connector CN4 ㊱ and PC board ass'y.
7. Cut the edge of PC board ass'y (X28, A/4) ㊲.
(Note: Pay attention not to bend pins, when insert them connector.) ㊳

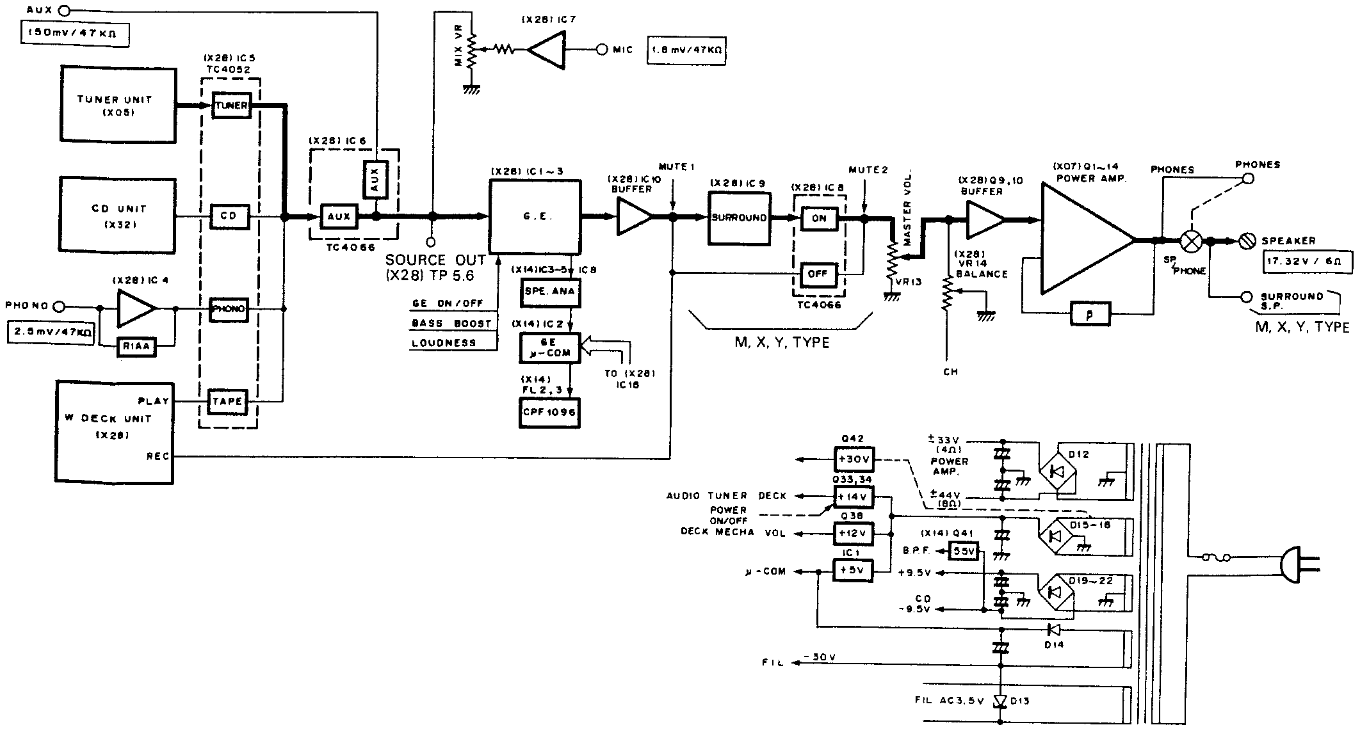

CN4
37
(X05)
35
35
36
CN8
32
(X28)(A/4)
(X28)
(B/4)
33
35
35
34

# BLOCK DIAGRAM

## DECK SECTION


0dBs=775mV
-20dBs(77.5mV)
REC IN
(TP 10.11)
IC14
REC LEVEL
(ELECTRIC VR)
Q25~28
BUFF
Q29,30
L1,2
MPX FILTER
Q31
32
IC15
DOLBY NR
LINE IN
MONI OUT
PB IN
REC OUT
-9dBs(275mV)
PLAY OUT
T.P. 7.9
Q31,32
LINE MUTE
Q73
R/P
Q29
ON/OFF
-72dBs(0.19mV)
DECK A
PB HEAD
IC1
PB EQ
A/B SW
EQ SW
Q11,12
VR1~4
PB LEVEL ADJ.
DECK B
R/P HEAD
Q72
A/B SEL
Q73
R/P SEL
IC13
HEAD SW
L3,4
TRAP
IC16
REC EQ
REC LEVEL ADJ.
VR5,6
Q23,24
REC MUTE
VR7,8
BIAS ADJ.
Q91,92,L5
BIAS OSC
IC1,2
(X87)
DECK B
ERASE HEAD
TAPE SW
Q87
FADE
Q95
Q93,94
D76~80
REC LEVEL METER
IC17
LEVEL (CCRS) AMP
GAIN SW
IC17
DPSS AMP
D71~75
PEAK LEVEL METER
SENS SW
Q34
IC18
MICROPROCESSOR
TO X25
TO (X14) IC1
MECHA ASS'Y A/B
OPERATION KEY LED DISPLAY
RESET
BIAS OSC
+15V
DOLBY LINE
MECHANISM
+12V
μ-COM
+5V
GND

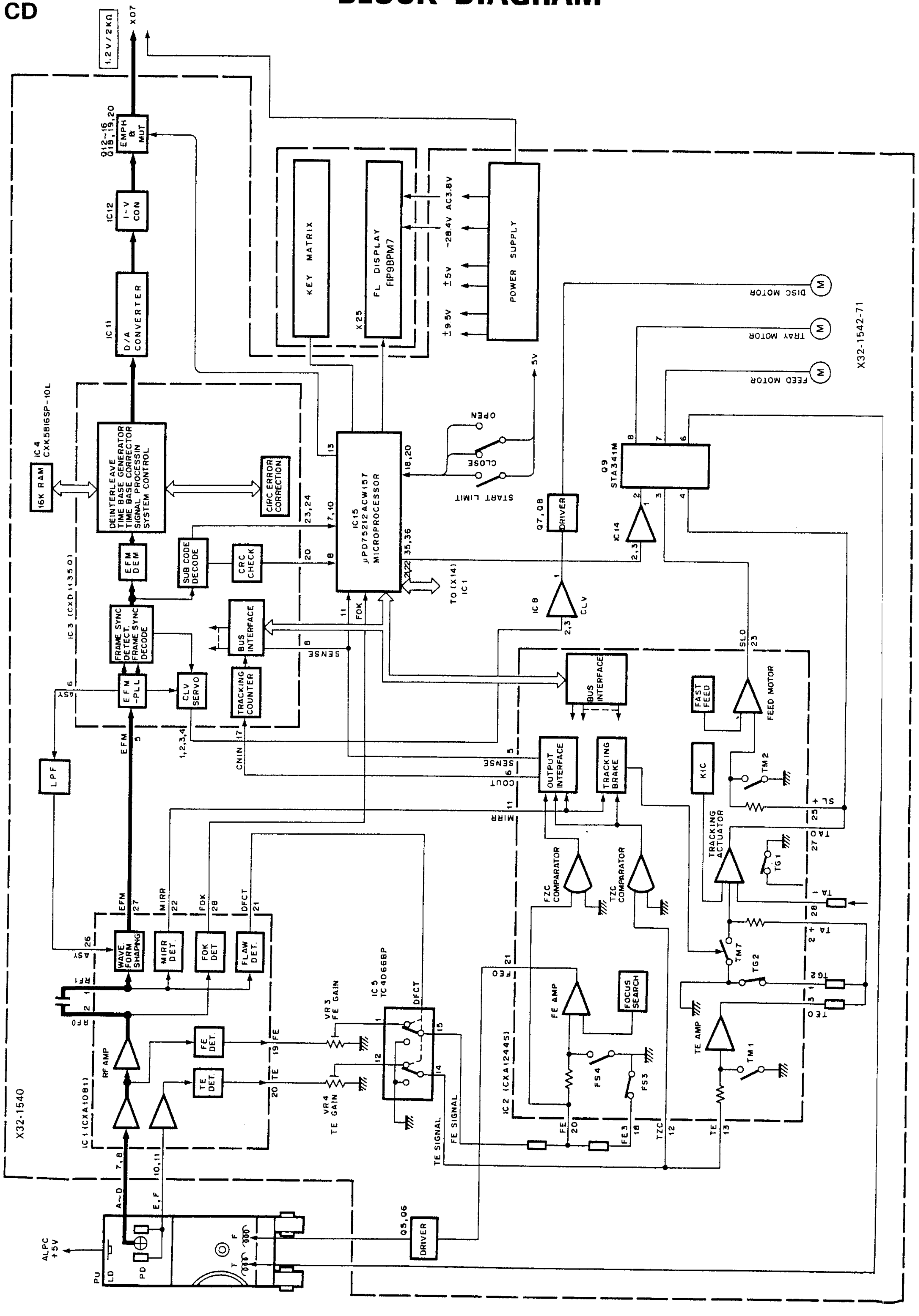
## AMP. SECTION


AUX
150mV/47KΩ
TUNER UNIT (X05)
CD UNIT (X32)
PHONO
2.5mV/47KΩ
(X28) IC4
RIAA
W DECK UNIT (X28)
PLAY
REC
(X28) IC5
TC4052
TUNER
CD
PHONO
TAPE
(X28) IC6
AUX
AUX
TC4066
(X28) IC7
MIX VR
MIC
1.8mV/47KΩ
SOURCE OUT
(X28) TP 5.6
(X28) IC1~3
G.E.
GE ON/OFF
BASS BOOST
LOUDNESS
(X14)IC3~5
IC8
SPE. ANA
(X14) IC2
GE μ-COM
TO (X28) IC18
(X14) FL2,3
CPF1096
MUTE 1
(X28) IC10
BUFFER
(X28) IC9
SURROUND
(X28) IC8
ON
OFF
TC4066
MUTE 2
MASTER VOL.
VR13
M, X, Y, TYPE
(X28) Q9,10
BUFFER
(X28) VR14
BALANCE
CH
(X07) Q1~14
POWER AMP.
β
PHONES
PHONES
SP/PHONE
SPEAKER
17.32V / 6Ω
SURROUND S.P.
M, X, Y, TYPE
Q42
+30V
Q33,34
AUDIO TUNER DECK
+14V
POWER ON/OFF
Q38
DECK MECHA VOL
+12V
IC1
μ-COM
+5V
±33V (4Ω)
POWER AMP.
±44V (8Ω)
D12
D15~18
(X14) Q41
B.P.F.
5.5V
+9.5V
CD
-9.5V
D19~22
D14
FIL
-30V
FIL AC3.5V
D13

# RXD-24/24M

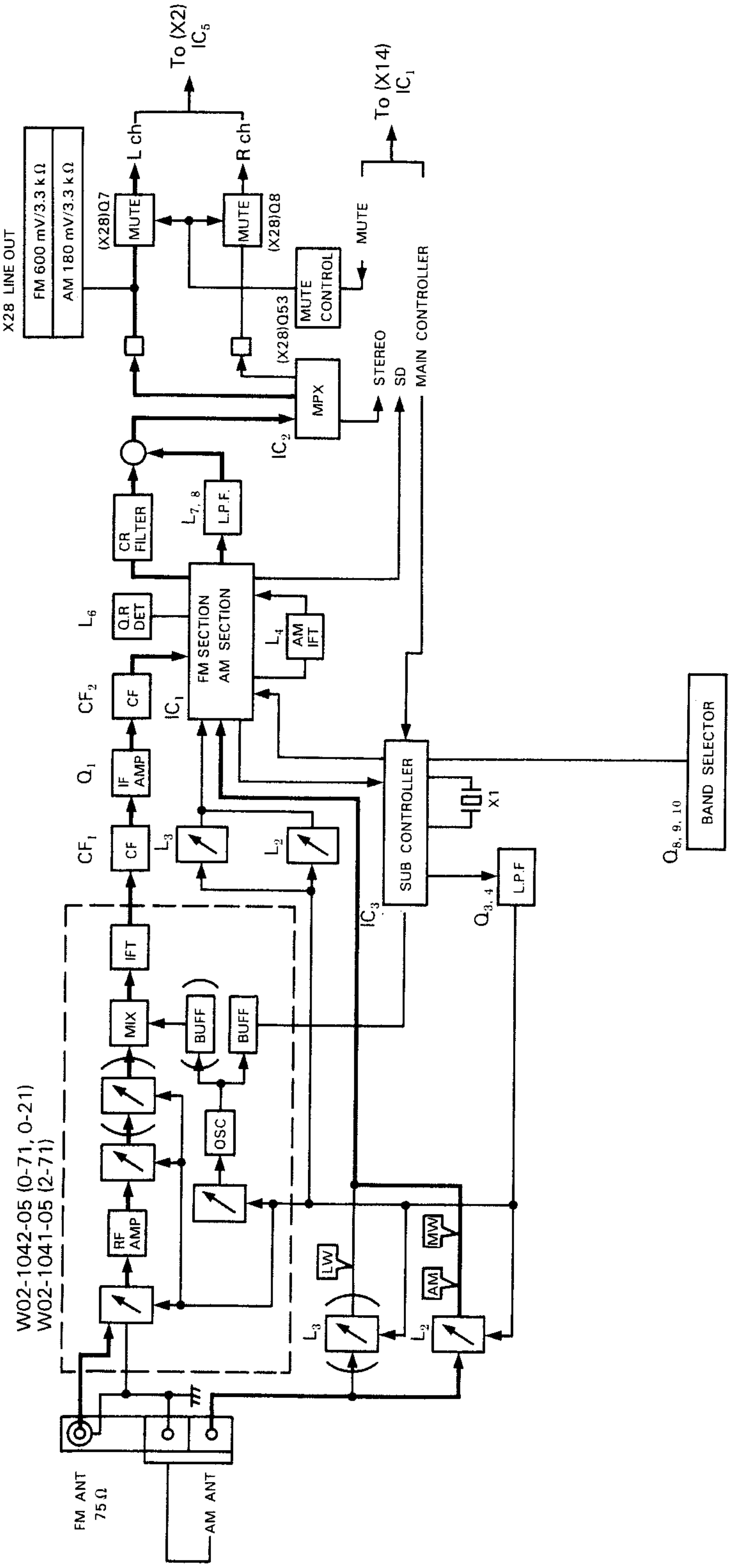
## BLOCK DIAGRAM

**CD**


1.2V/2kΩ
X07
Q12~16
Q18,19,20
EMPH & MUT
IC12
I-V CON
IC11
D/A CONVERTER
IC4
CXK5816SP-10L
16K RAM
DEINTERLEAVE
TIME BASE GENERATOR
TIME BASE CORRECTOR
SIGNAL PROCESSIN
SYSTEM CONTROL
CIRC ERROR CORRECTION
IC3 (CXD1135Q)
EFM DEM
SUB CODE DECODE
CRC CHECK
FRAME SYNC DETECT. FRAME SYNC DECODE
EFM-PLL
CLV SERVO
BUS INTERFACE
TRACKING COUNTER
ASY
LPF
EFM
SENSE
CNIN
COUT
MIRR
KEY MATRIX
FL DISPLAY
FIP9BPM7
X25
POWER SUPPLY
AC3.8V
-28.4V
±5V
±9.5V
5V
OPEN
CLOSE
START LIMIT
IC15
μPD75212ACW157
MICROPROCESSOR
TO (X14) IC1
DISC MOTOR
TRAY MOTOR
FEED MOTOR
X32-1542-71
Q9
STA341M
Q7,Q8
DRIVER
IC14
IC8
CLV
SLO
FAST FEED
FEED MOTOR
OUTPUT INTERFACE
TRACKING BRAKE
KIC
TM2
SL+
TRACKING ACTUATOR
TA O
TG1
TA -
TA +
TM7
TG2
TG2
TE O
FZC COMPARATOR
TZC COMPARATOR
FE AMP
FOCUS SEARCH
FEO
TE AMP
TM1
FS4
FS3
IC2 (CXA1244S)
FE
FE3
TZC
TE
WAVE FORM SHAPING
MIRR DET.
FOK DET
FLAW DET.
MIRR
FOK
DFCT
RFI
RFO
RF AMP
FE DET.
TE DET.
IC1 (CXA1081)
VR3 FE GAIN
VR4 TE GAIN
IC5
TC4066BP
DFCT
FE SIGNAL
TE SIGNAL
X32-1540
A~D
E,F
ALPC +5V
PU
LD
PD
F
T
Q5,Q6
DRIVER

# BLOCK DIAGRAM

## TUNER SECTION (X05-)


To (X2)
$IC_5$
To (X14)
$IC_1$
X28 LINE OUT
FM 600 mV/3.3 kΩ
AM 180 mV/3.3 kΩ
L ch
R ch
(X28)Q7
MUTE
MUTE
(X28)Q8
MUTE CONTROL
MUTE
(X28)Q53
STEREO
SD
MAIN CONTROLLER
MPX
$IC_2$
L.P.F.
$L_{7,8}$
CR FILTER
Q.R DET
$L_6$
FM SECTION
AM SECTION
$IC_1$
$L_4$
AM IFT
CF
$CF_2$
IF AMP
$Q_1$
CF
$CF_1$
$L_3$
$L_2$
SUB CONTROLLER
X1
BAND SELECTOR
$Q_{8,9,10}$
L.P.F
$Q_{3,4}$
$IC_3$
IFT
MIX
BUFF
BUFF
OSC
RF AMP
W02-1042-05 (0-71, 0-21)
W02-1041-05 (2-71)
LW
MW
AM
$L_3$
$L_2$
FM ANT
75 Ω
AM ANT

# CIRCUIT DESCRIPTION

## CIRCUIT OPERATION

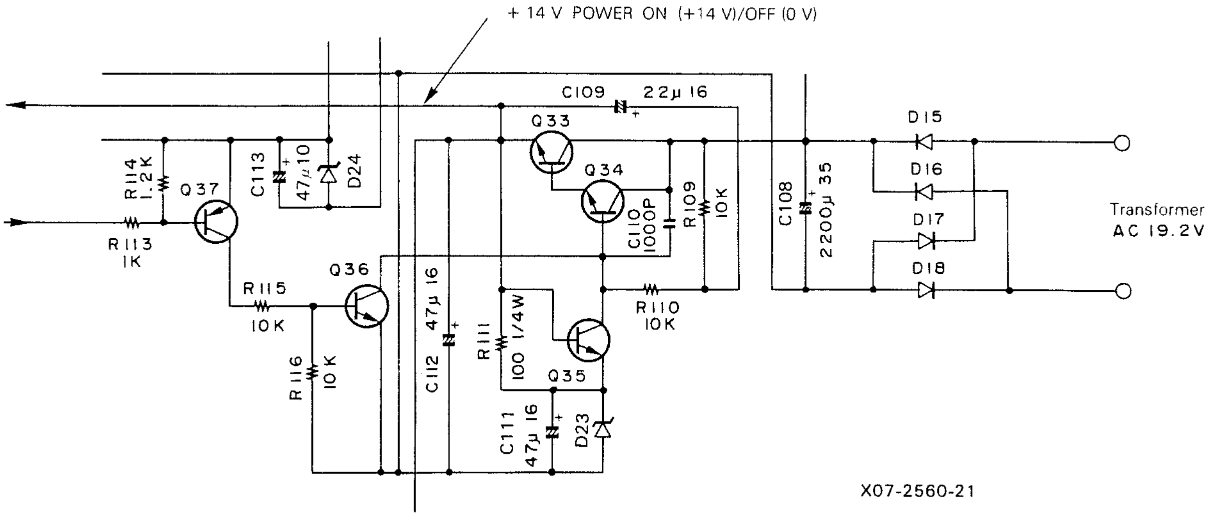
### POWER ON/OFF circuit

For remote control operation, a remote controller incorporating a small transformer was previously used for the drive microcomputer power by using a power relay.

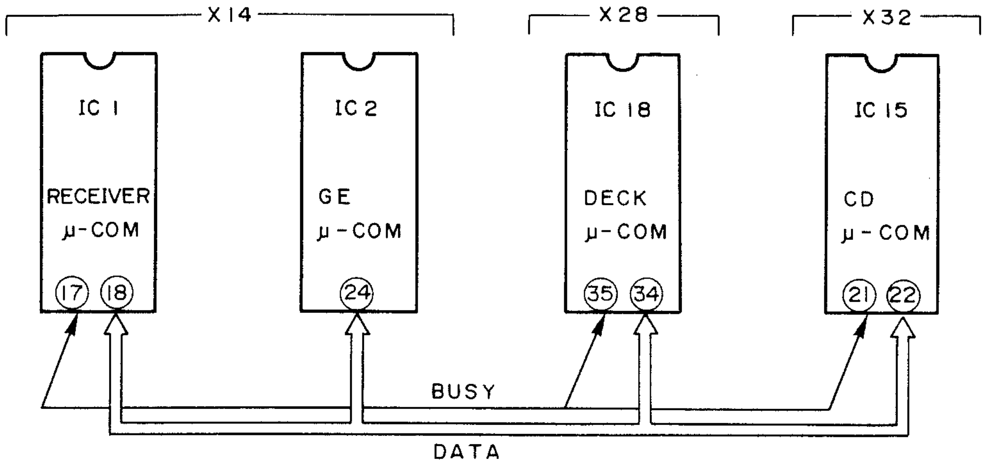
The primary winding of a large transformer conducts, and all voltages appear on its secondary winding. The +14 V power output at Q36 is switched ON and OFF by the POWER ON/OFF circuit, and the +14 V power current is blocked. This +14 V current is used for bias in the initial stage, so the currents of class A predrivers Q1 through Q4 become zero. Therefore, the final-stage bias current also becomes zero.

- All voltages other than +14 V are applied on the secondary winding, but the current is blocked to prevent heat generation.

The voltage is applied unless the power cord is disconnected. Be sure to disconnect the power cord before soldering and replacing parts.


+ 14 V POWER ON (+14 V)/OFF (0 V)
C109
22μ 16
Q33
Q34
R114
1.2K
Q37
C113
47μ10
D24
R113
1K
R115
10K
Q36
R116
10K
C112
47μ 16
R111
100 1/4W
Q35
C111
47μ 16
D23
C110
1000P
R109
10K
R110
10K
C108
2200μ 35
D15
D16
D17
D18
Transformer
AC 19.2V
X07-2560-21

# CIRCUIT DESCRIPTION



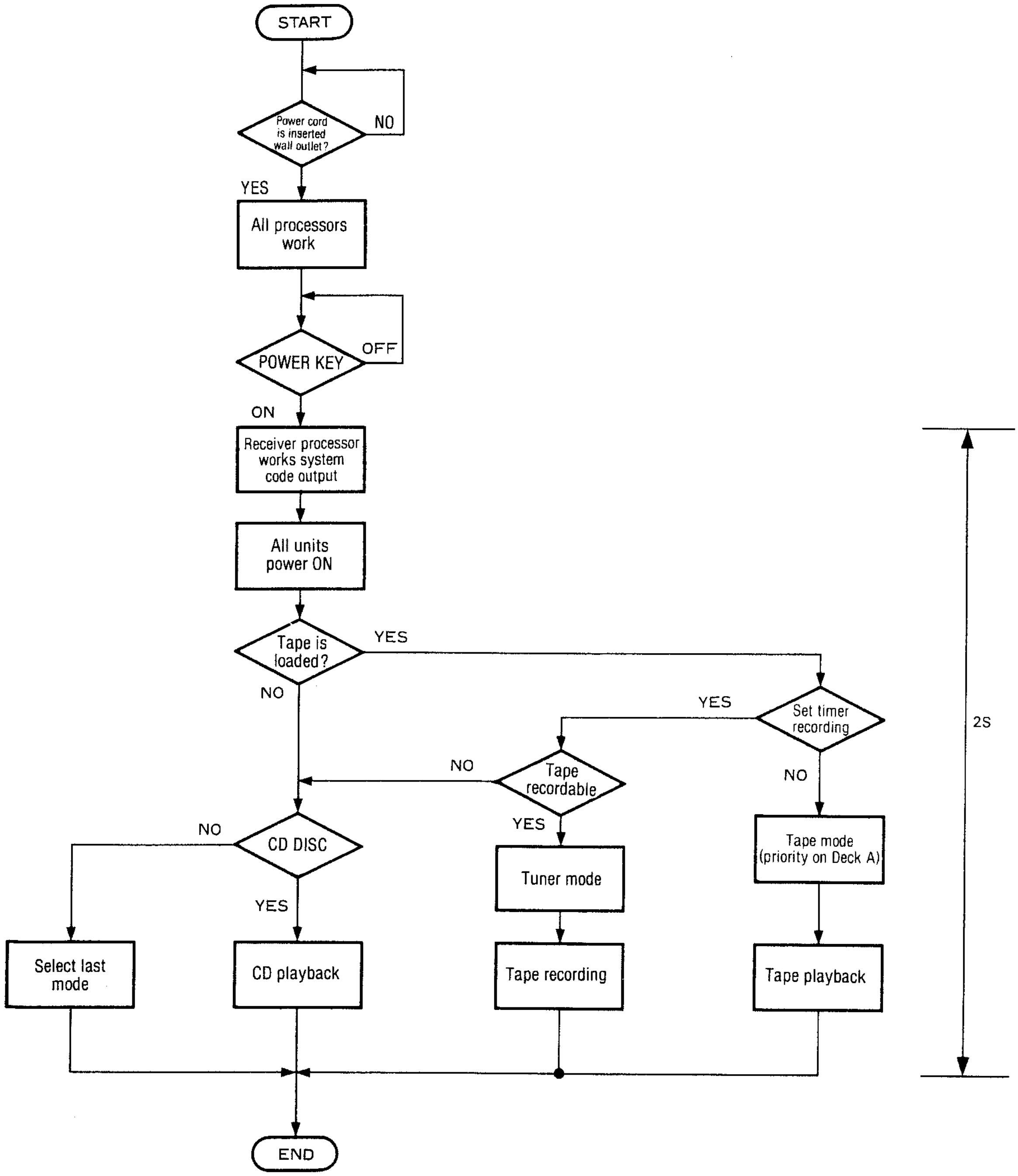
| Microprocessor | µPD75208CW-A42 | M50940-187SP | µPD75112CW-044 | µPD75212ACW-157 |
|---|---|---|---|---|

## Microprocessor Initialization and Test Mode

<table>
<tr><th colspan="2"></th><th>Receiver microprocessor (X14)IC1</th><th>GE microprocessor (X14)IC2</th><th>Deck microprocessor (main) (X28)IC18</th><th>CD microprocessor (X32)IC15</th></tr>
<tr><td colspan="2"><b>Backup capacitor</b></td><td colspan="2">• C203 on X05 board (2200 µF, 6.3 V) (Backup time of more than 3 days. Can actually provide back-up for 1 week.)</td><td>Not provided</td><td>Not provided</td></tr>
<tr><td colspan="2" rowspan="2"><b>Initialization (reset)</b></td><td>• Connect the power cord while pressing the selector TUNER key.</td><td>←</td><td></td><td></td></tr>
<tr><td></td><td>• Connect the power cord while pressing the EQ MEMORY key .</td><td>• Disconnect or connect the power cord.</td><td>←</td></tr>
<tr><td rowspan="7"><b>Test Mode</b></td><td><b>Description</b></td><td colspan="4">• All FL and LED indicators go on.</td></tr>
<tr><td><b>Operation</b></td><td colspan="4">• Connect the power cord while pressing the selector TAPE A key with the power switched on.</td></tr>
<tr><td><b>Canceling</b></td><td colspan="4">(1) Press the selector PHONO key when all indicators go on. with the power switched on.<br>(2) Disconnect the power cord.</td></tr>
<tr><td rowspan="4"><b>Adjustment mode</b></td><td rowspan="4">Not provided</td><td><b>Description</b></td><td>• See the Deck Microprocessor for details.</td><td>• See the CD Microprocessor for details.</td></tr>
<tr><td><b>Operation</b></td><td>• Connect the power cord while pressing the selector AUX key.</td><td>• Connect the power cord while pressing the selector CD key.</td></tr>
<tr><td rowspan="3"><b>Canceling</b></td><td colspan="2">(1) Set the POWER key to ON or OFF.<br>(2) Press the other selector keys.</td></tr>
<tr><td>(3) Set the CD in the PLAY mode.</td><td>(3) Set the deck in the PLAY mode.</td></tr>
<tr><td colspan="2">(4) Disconnect or connect the power cord (initialization).</td></tr>
</table>

# CIRCUIT DESCRIPTION

- Flow chart of playback after power ON.


START
Power cord is inserted wall outlet?
NO
YES
All processors work
POWER KEY
OFF
ON
Receiver processor works system code output
All units power ON
Tape is loaded?
YES
NO
Set timer recording
YES
NO
Tape recordable
NO
YES
CD DISC
NO
YES
Tuner mode
Tape mode (priority on Deck A)
Select last mode
CD playback
Tape recording
Tape playback
END
2S

- When set the last-mode timer playback (except Deck and CD player) don't load the cassette tape and compact disc.

# CIRCUIT DESCRIPTION

## 1. Description of Components

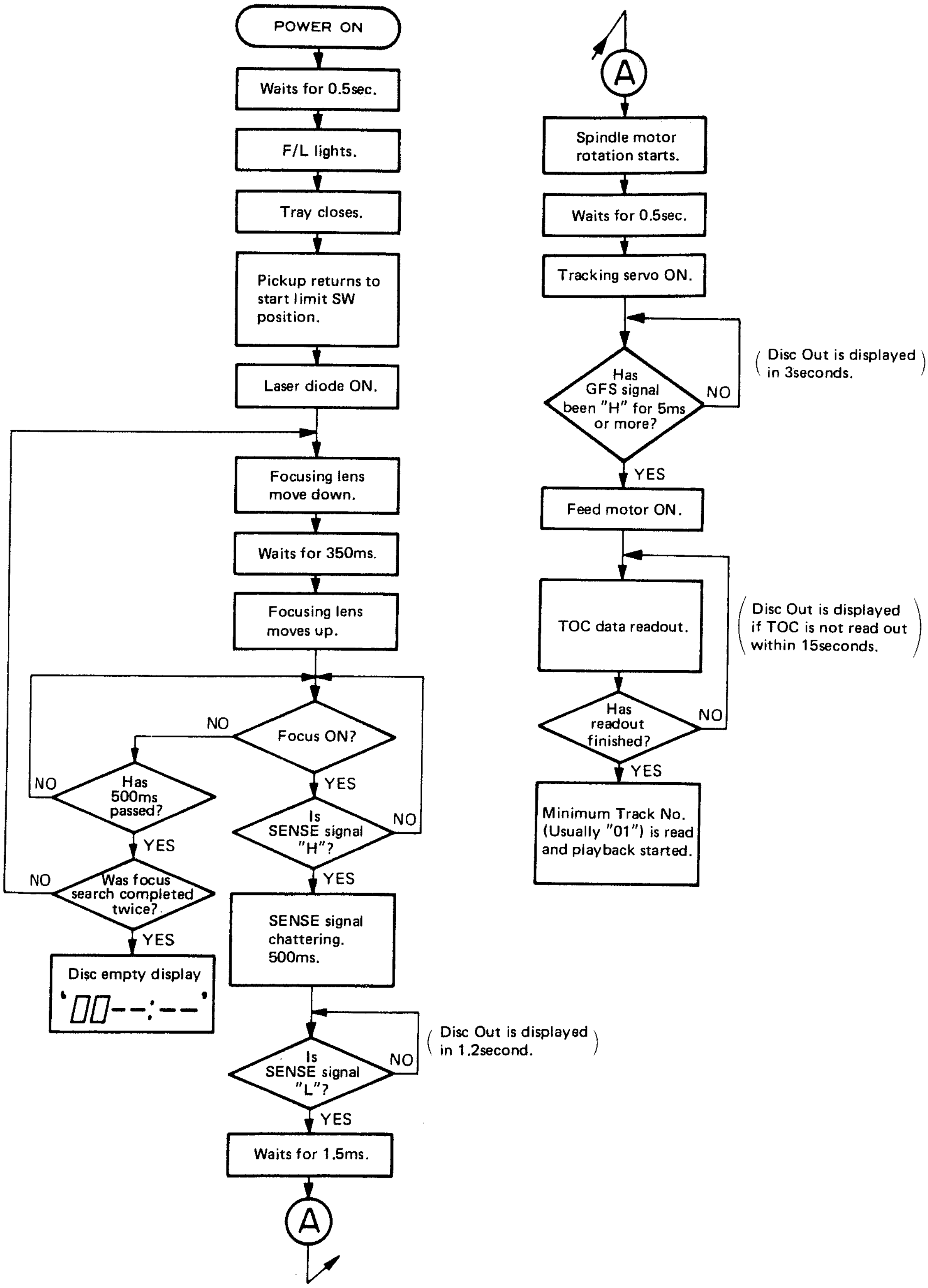
### 1-1. CONTROL UNIT (X32-1542-71)

| Ref. No. | Parts No. | Use/Function | Operation/Condition/Compatibility |
|---|---|---|---|
| IC1 | CXA1081S | RF AMP | Laser power control of pickup. Generates RF signal, focus error, tracking error, mirror signal, etc. from signals from pickup. |
| IC2 | CXA1244S | Servo signal processing | Controls servos of focus, tracking, and feeding systems. |
| IC3 | CXD1135QZ | Digital signal processing | Demodulates, corrects, and interpolates EFM signals and performs digital filtering.<br>Generates control signals of disc motor and phase comparison output of PLL for EFM demodulation. |
| IC4 | CXK5816SP-10L | S-RAM | S-RAM for de-interleaving at EFM demodulation. Since this is designed for double-speed, this cannot be used for models which cannot finish operation in 100nsec. |
| IC5 | TC4066BP | Analog SW | Opens connection of focus error and prevents anti-shock mechanism from operating, when scratch is made. |
| IC8 | NJM4565D | Operation amplifier | Used for phase compensation circuit of PLL and CLV. |
| IC11 | TDA1543A | D/A converter | Sends out respective D/A conversion outputs as currents to Lch and Rch. |
| IC12 | NJM4565D | OP amp | I-V inverter of D/A converter output. |
| IC13 | NJM4565D | OP amp | Power Supply |
| IC14 | NJM4565D | OP amp | Tray open/close |
| IC15 | µPD75212ACW-157 | Microprocessor | Microprocessor for controlling CD player system |
| Q1 | 2SA1534A | Transistor | Driver of laser diode pickup. |
| Q2 | 2SA733(A)(Q,P) | Transistor | Controls operation of ASY with signal of FOK. |
| Q4 | 2SC945(A)(Q,P) | Transistor | Amplifies tracking error signal. |
| Q5 | 2SD1944 | Transistor | Positive (+) driver of focus actuator drivers. |
| Q6 | 2SA1534A | Transistor | Negative (−) driver of focus actuator drivers. |
| Q7 | 2SA1534A | Transistor | Negative (−) driver of disc motor drivers. |
| Q8 | 2SC3949A | Transistor | Positive (+) driver of disc motor drivers. |
| Q9 | STA341M | Composite transistor | Driver of tray motor, tracking actuator, and feed motor. |
| Q14, 15 | 2SC945(A) | Switch | Used as muting switch (ON: NORMAL play) |
| Q16 | DTA124ES | Switch | Used as muting switch (ON: NORMAL play) |
| Q18, 19 | 2SD1302 | Switch | Used as muting switch |
| Q20 | 2SC945(A) | Switch | |
| Q21 | 2SD1266 | Filter | Ripple filter (+5 V) |
| Q22 | 2SC3940A | Filter | Ripple filter (−5 V) |
| Q23 | DTC124ES | Switch | Control power supply (±5 V) by microprocessor signal (signal processor and DAC circuit doesn't work, if not playback CD player. |

# CIRCUIT DESCRIPTION

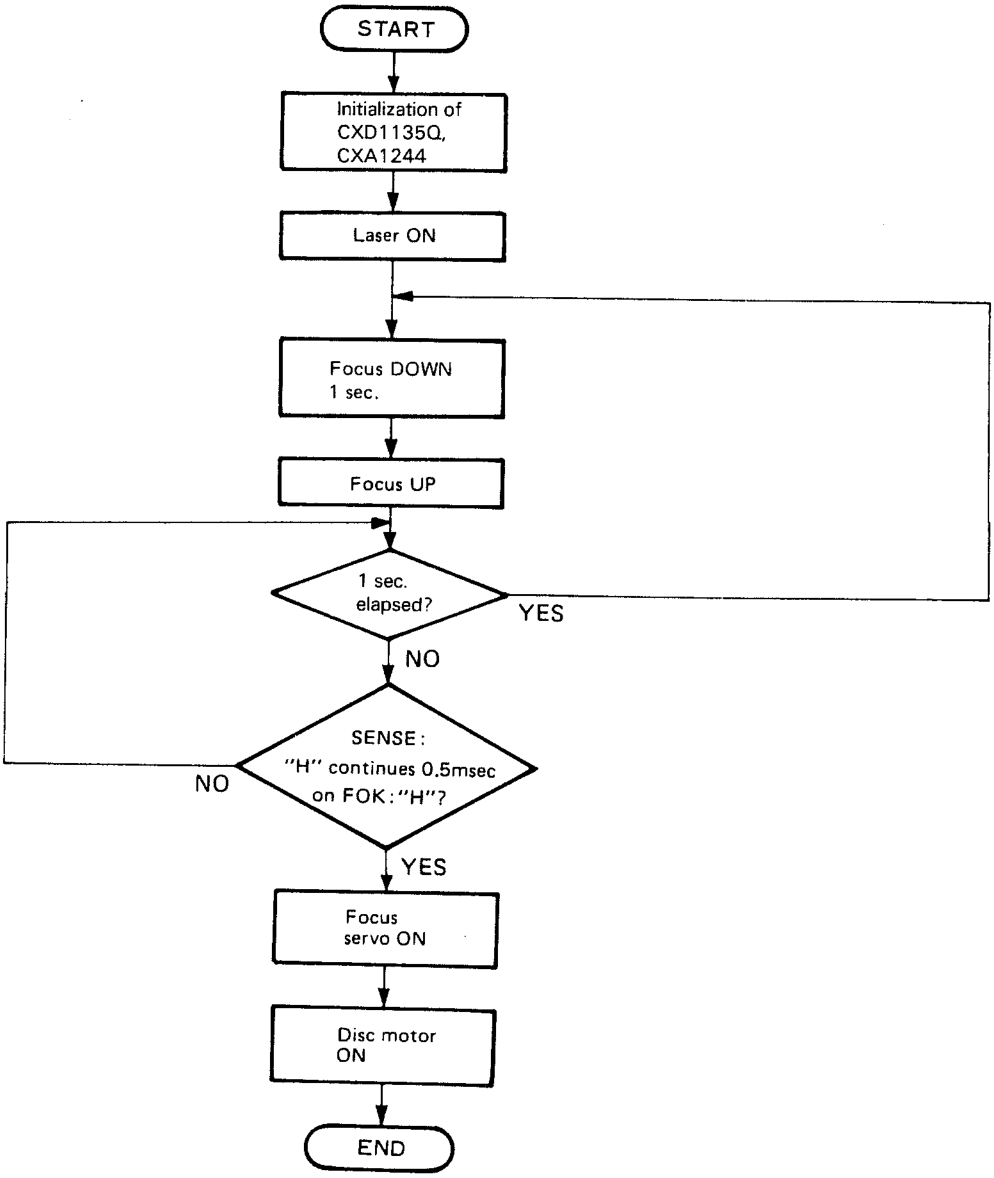
## 2. Set Mode Flowchart

### 2–1. Outline after POWER ON


POWER ON
Waits for 0.5sec.
F/L lights.
Tray closes.
Pickup returns to start limit SW position.
Laser diode ON.
Focusing lens move down.
Waits for 350ms.
Focusing lens moves up.
Focus ON?
NO
YES
Has 500ms passed?
NO
YES
Was focus search completed twice?
NO
YES
Disc empty display
'00--:--'
Is SENSE signal "H"?
NO
YES
SENSE signal chattering. 500ms.
Is SENSE signal "L"?
NO
YES
(Disc Out is displayed in 1.2second.)
Waits for 1.5ms.
A
A
Spindle motor rotation starts.
Waits for 0.5sec.
Tracking servo ON.
Has GFS signal been "H" for 5ms or more?
NO
YES
(Disc Out is displayed in 3seconds.)
Feed motor ON.
TOC data readout.
(Disc Out is displayed if TOC is not read out within 15seconds.)
Has readout finished?
NO
YES
Minimum Track No. (Usually "01") is read and playback started.

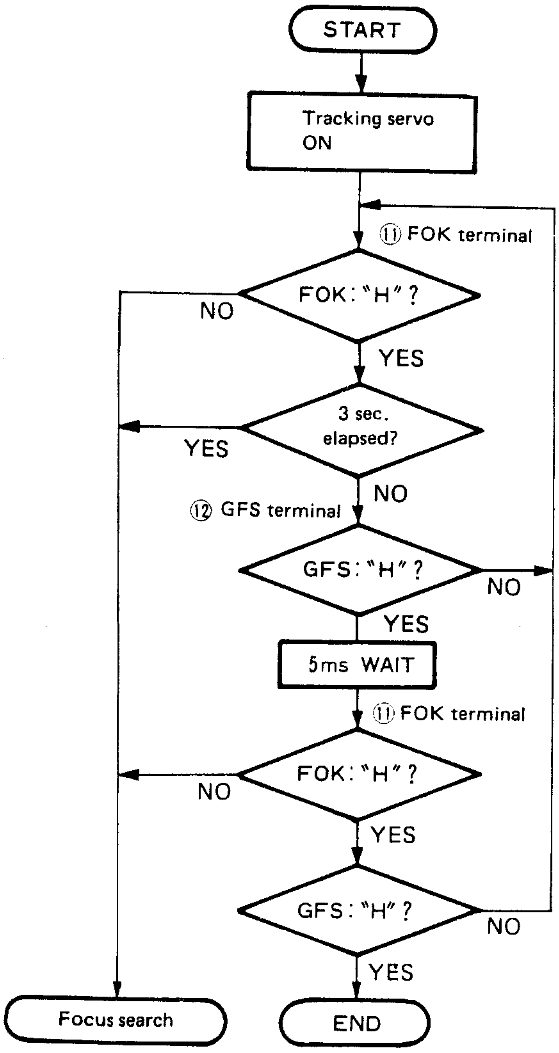
# CIRCUIT DESCRIPTION

- **Focus search & focus servo ON**

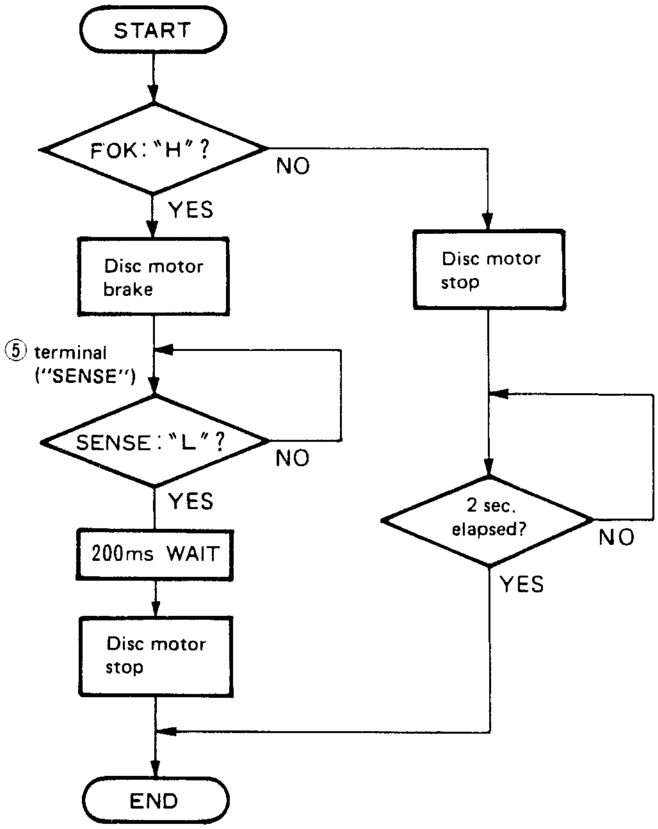

START
Initialization of CXD1135Q, CXA1244
Laser ON
Focus DOWN 1 sec.
Focus UP
1 sec. elapsed?
YES
NO
SENSE: "H" continues 0.5msec on FOK: "H"?
NO
YES
Focus servo ON
Disc motor ON
END

# CIRCUIT DESCRIPTION

- **Tracking servo ON**

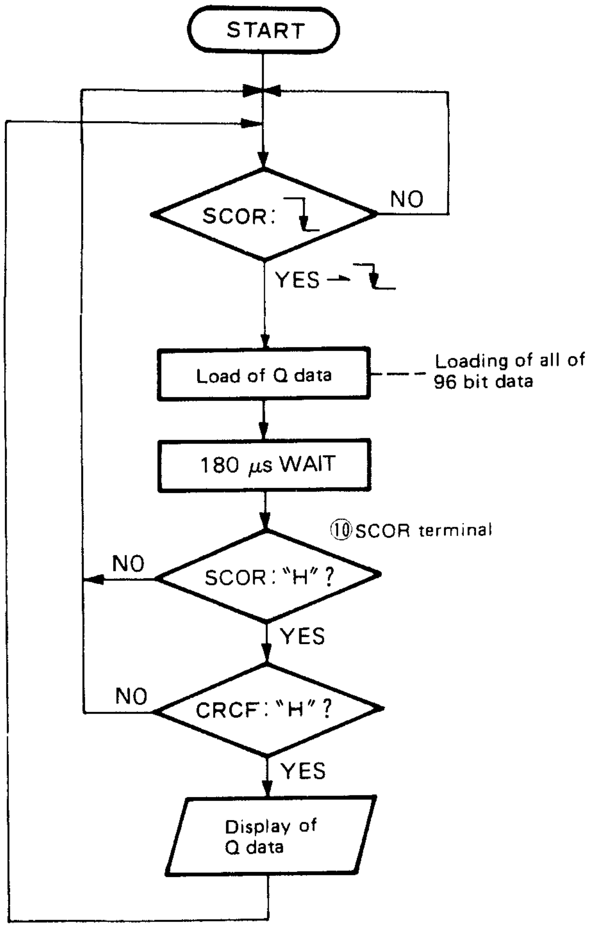

START
Tracking servo ON
⑪ FOK terminal
FOK: "H"?
NO
YES
3 sec. elapsed?
YES
NO
⑫ GFS terminal
GFS: "H"?
NO
YES
5ms WAIT
⑪ FOK terminal
FOK: "H"?
NO
YES
GFS: "H"?
NO
YES
Focus search
END

- **Disc motor STOP**

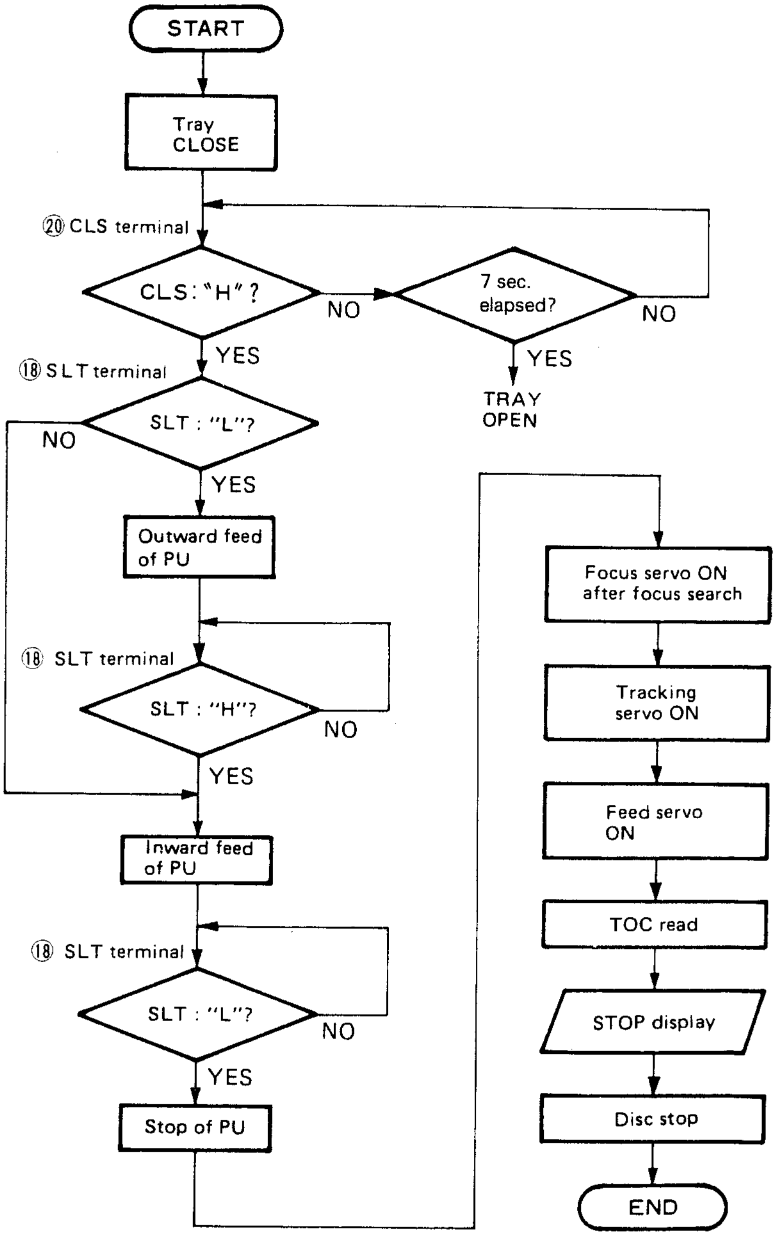

START
FOK: "H"?
NO
YES
Disc motor brake
Disc motor stop
⑤ terminal ("SENSE")
SENSE: "L"?
NO
YES
200ms WAIT
2 sec. elapsed?
NO
YES
Disc motor stop
END

# CIRCUIT DESCRIPTION

- **From loading of Q data to display**


START
SCOR: ⌐L
NO
YES → ⌐L
Load of Q data
Loading of all of 96 bit data
180 μs WAIT
⑩SCOR terminal
SCOR: "H" ?
NO
YES
CRCF: "H" ?
NO
YES
Display of Q data

- **In a usual case, since the tray was pushed when the tray is OPEN until STOP display is made.**


START
Tray CLOSE
⑳ CLS terminal
CLS: "H" ?
NO
7 sec. elapsed?
NO
YES
TRAY OPEN
YES
⑱ SLT terminal
SLT : "L"?
NO
YES
Outward feed of PU
⑱ SLT terminal
SLT : "H"?
NO
YES
Inward feed of PU
⑱ SLT terminal
SLT : "L"?
NO
YES
Stop of PU
Focus servo ON after focus search
Tracking servo ON
Feed servo ON
TOC read
STOP display
Disc stop
END

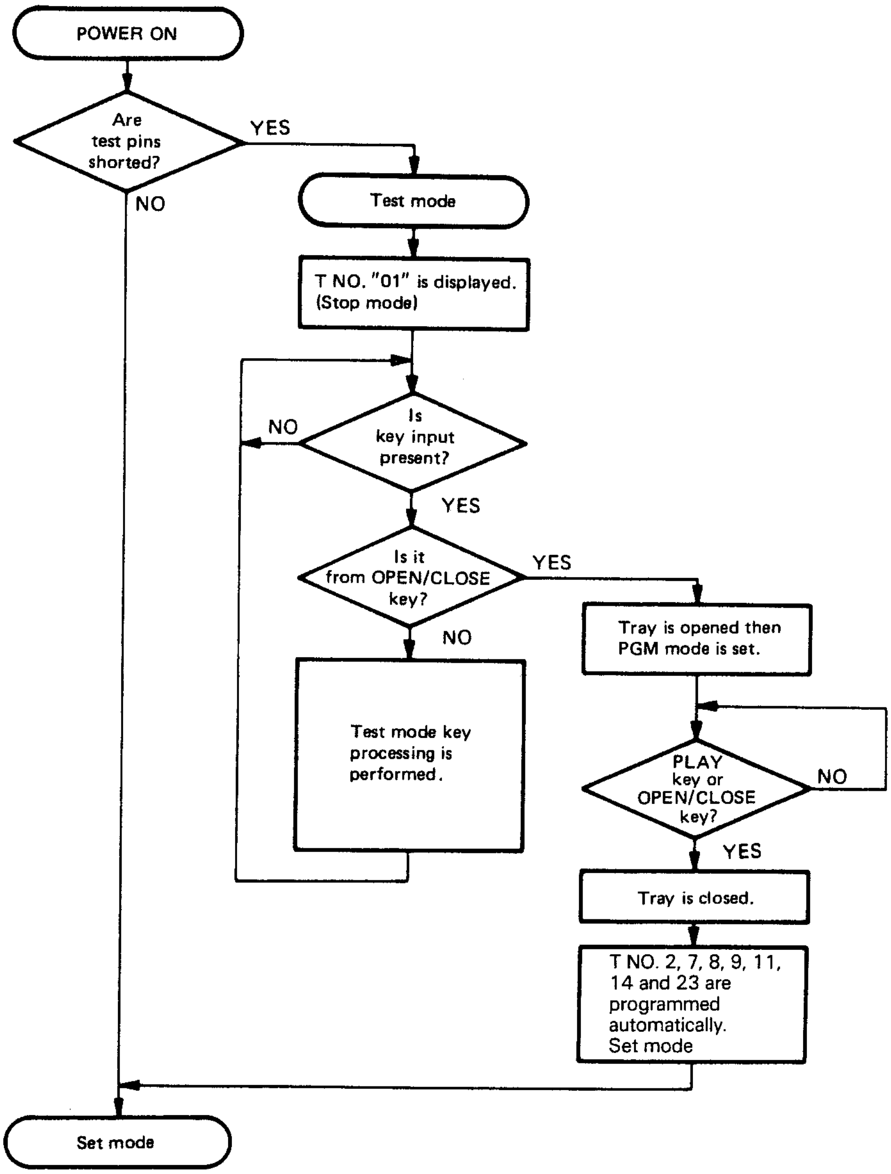
# CIRCUIT DESCRIPTION

## 3. Test Mode

### 3–1. Setting the Test Mode

Unlike previous models, this microprocessor can be put to the test mode by just short-circuiting the test pins even in the set mode (normal condition). (However, the disc must be present in the unit.)

The test mode can also be initiated with the previous method, i. e. by switching the power on with the test pins short-circuited.


POWER ON
Are test pins shorted?
YES
NO
Test mode
T NO. "01" is displayed. (Stop mode)
Is key input present?
NO
YES
Is it from OPEN/CLOSE key?
YES
NO
Test mode key processing is performed.
Tray is opened then PGM mode is set.
PLAY key or OPEN/CLOSE key?
NO
YES
Tray is closed.
T NO. 2, 7, 8, 9, 11, 14 and 23 are programmed automatically. Set mode
Set mode

# CIRCUIT DESCRIPTION

## 1. How to set TEST MODE

- * Short circuit the test pins on the CD player control PC board (×32).
- * Insert AC power cord to wall outlet while pressing CD key on the amplifier selector.

## 2. Key and functions valid in test mode

| No. | Input key | Function | Track No. display |
|---|---|---|---|
| 1 | PLAY | (1) Focusing servo ........................................ ON.<br>(2) Tracking servo ........................................ ON.<br>(3) Feed servo ............................................... ON. | 05<br>↓<br>Displayed for a few seconds after completion of (1), (2) and (3).<br>↓<br>Disc Track No. is displayed. |
| 2 | CHECK | (1) Focusing servo ........................................ ON.<br>(2) Tracking servo ........................................ OFF.<br>(3) Feed servo ............................................... OFF. | 03 |
| 3 | CLEAR | (1) Focusing servo ........................................ ON.<br>(2) Tracking servo ........................................ ON.<br>(3) Feed servo ............................................... OFF. | 04 |
| 4 | STOP | (1) Focusing servo ........................................ OFF.<br>(2) Tracking servo ........................................ OFF.<br>(3) Feed servo ............................................... OFF. | 01 |
| 5 | REPEAT | (1) Tray ........................................................ Opened.<br>(2) Laser ....................................................... ON.<br>The REPEAT function is canceled when the tray is closed by pressing the tray.<br>The Track No. display | 02 |
| 6 | ▶▶ | Turns all FL display lamps ON. | |
| 7 | ◀◀ | Turns all FL display lamps OFF. | |
| 8 | Numeric key | Pickup slides at start limit SW. | |
| 9 | OPEN/CLOSE | When the tray is opened then closed, Track No. 2, 7, 8, 9, 11, 14 and 23 are programmed and the test mode is canceled. | |
| 10 | P. MODE | Track No. 2, 7, 8, 9, 11, 14 and 23 are programmed and the test mode is canceled. | |
| 11 | REPEAT PLAY | When REPEAT key is pressed, Tray is opened. And PLAY key is pressed, playback Track No. 6. | |
| 12 | EDIT | When EDIT key is pressed, EDIT on the display is lighted. | |

## 3. TOTAL TEST MODE

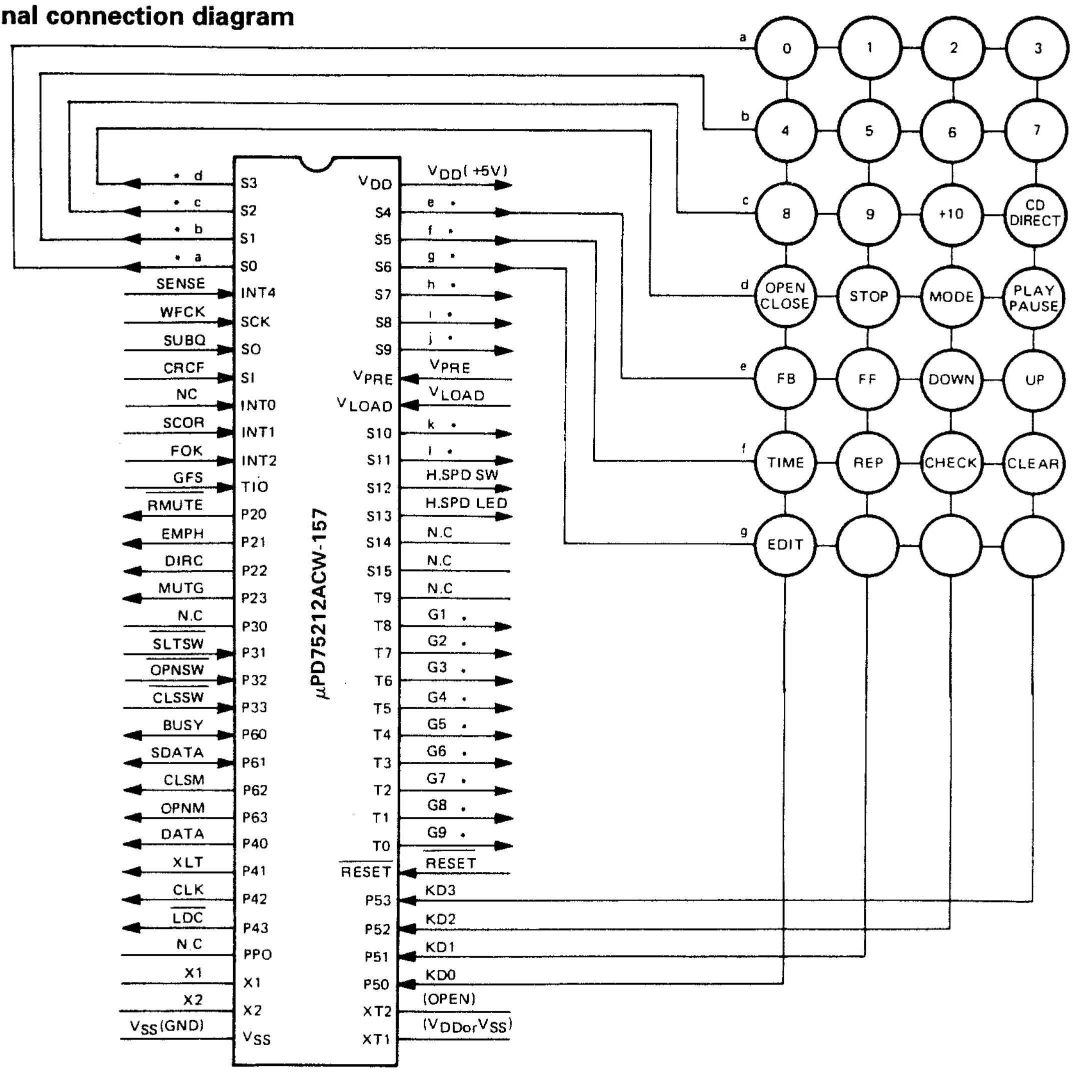
How to check CCRS operation in TEST MODE

1. Set only the CD player to TEST MODE (Don't load cassette tape in the decks).
2. Load the cassette tape into the cassette decks after about 4 seconds.
3. Press the CCRS key.
   CD player will playback disc without sampling the disc level for 40 seconds. And then cassette deck will be in recording mode.

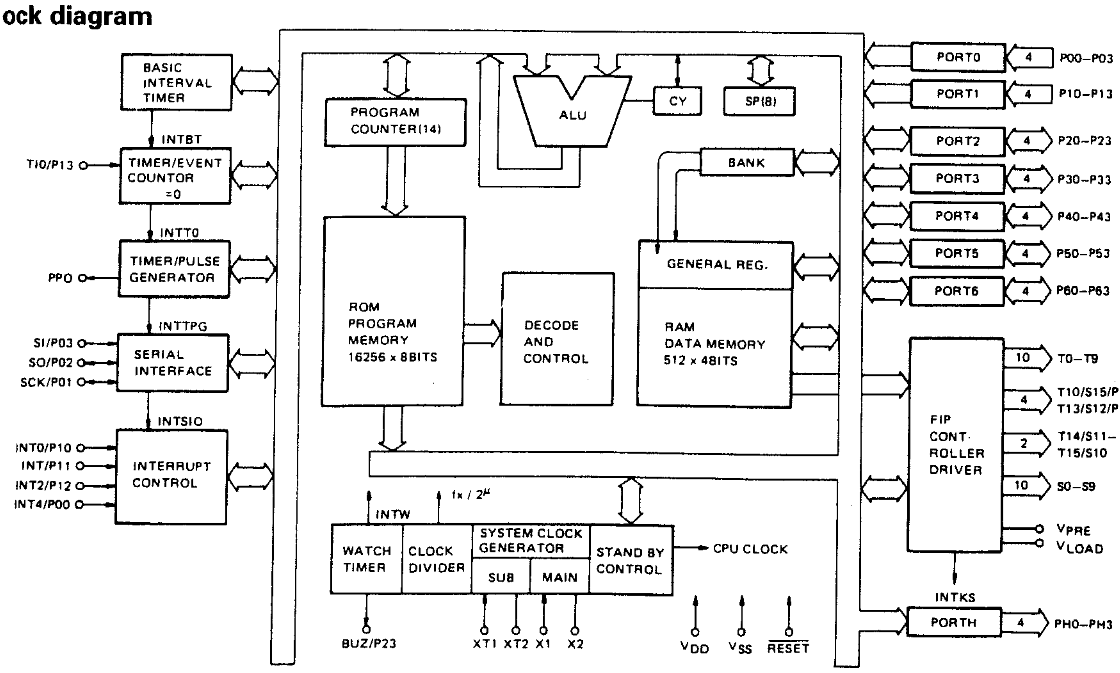
# CIRCUIT DESCRIPTION

## 4. Microprocessor: μPD75212ACW-157 (X32-1542-71: IC15)

### 4-1. Terminal connection diagram


μPD75212ACW-157
a
b
c
d
e
f
g
0
1
2
3
4
5
6
7
8
9
+10
CD DIRECT
OPEN CLOSE
STOP
MODE
PLAY PAUSE
FB
FF
DOWN
UP
TIME
REP
CHECK
CLEAR
EDIT
d S3
c S2
b S1
a S0
SENSE INT4
WFCK SCK
SUBQ SO
CRCF SI
NC INT0
SCOR INT1
FOK INT2
GFS TI0
RMUTE P20
EMPH P21
DIRC P22
MUTG P23
N.C P30
SLTSW P31
OPNSW P32
CLSSW P33
BUSY P60
SDATA P61
CLSM P62
OPNM P63
DATA P40
XLT P41
CLK P42
LDC P43
N C PPO
X1 X1
X2 X2
VSS(GND) VSS
VDD VDD(+5V)
S4 e
S5 f
S6 g
S7 h
S8 i
S9 j
VPRE VPRE
VLOAD VLOAD
S10 k
S11 l
S12 H.SPD SW
S13 H.SPD LED
S14 N.C
S15 N.C
T9 N.C
T8 G1
T7 G2
T6 G3
T5 G4
T4 G5
T3 G6
T2 G7
T1 G8
T0 G9
RESET RESET
P53 KD3
P52 KD2
P51 KD1
P50 KD0
XT2 (OPEN)
XT1 (VDDorVSS)

### 4-2. Block diagram


BASIC INTERVAL TIMER
INTBT
TI0/P13
TIMER/EVENT COUNTOR #0
INTT0
PPO
TIMER/PULSE GENERATOR
INTTPG
SI/P03
SO/P02
SCK/P01
SERIAL INTERFACE
INTSIO
INT0/P10
INT/P11
INT2/P12
INT4/P00
INTERRUPT CONTROL
PROGRAM COUNTER(14)
ALU
CY
SP(8)
BANK
ROM PROGRAM MEMORY 16256 x 8BITS
DECODE AND CONTROL
GENERAL REG.
RAM DATA MEMORY 512 x 4BITS
INTW
fx / 2ᴺ
WATCH TIMER
CLOCK DIVIDER
SYSTEM CLOCK GENERATOR
SUB
MAIN
STAND BY CONTROL
CPU CLOCK
BUZ/P23
XT1
XT2
X1
X2
VDD
VSS
RESET
PORT0 4 P00–P03
PORT1 4 P10–P13
PORT2 4 P20–P23
PORT3 4 P30–P33
PORT4 4 P40–P43
PORT5 4 P50–P53
PORT6 4 P60–P63
FIP CONT-ROLLER DRIVER
10 T0–T9
4 T10/S15/PH3–T13/S12/PH0
2 T14/S11–T15/S10
10 S0–S9
VPRE
VLOAD
INTKS
PORTH 4 PH0–PH3

## CIRCUIT DESCRIPTION

### 4-3. Explanation of terminals

| Terminal No. | Terminal Name | I/O | Function Name | Function |
|---|---|---|---|---|
| 1 ~ 4 | S3 ~ S0 | O | d ~ a | FL segment control terminals (also used for key scan signals). |
| 5 | P00/INT4 | I | SENSE | Signal detection terminal for SENSE signal from signal processor and servo ICs. |
| 6 | P01/$\overline{\text{SCK}}$ | I | WFCK | Q data read clock input terminal. |
| 7 | P02/SO | I | SUBQ | Q data input terminal. |
| 8 | P03/SI | I | CRCF | Q data CRC check result input terminal. ("H" : OK) |
| 9 | P10/INT0 | I | – | Not used (GND). |
| 10 | P11/INT1 | I | SCOR | Sub-code frame sync detection signal input terminal. |
| 11 | P12/INT2 | I | FOK | Input terminal for FOK signal from RF amp |
| 12 | P13/TIO | I | GFS | Frame sync signal input terminal. ("H" : Frame sync) |
| 13 | P20 | O | $\overline{\text{RMUTE}}$ | Analog muting control terminal. (Active "L") |
| 14 | P21 | O | EMPH | Deemphasis control terminal. (Active "H") |
| 15 | P22 | O | DIRC | DIRC terminal of servo IC. |
| 16 | P23 | O | MUTG | MUTE terminal of signal processor IC. (Active "H") |
| 17 | P30 | – | – | Not used. |
| 18 | P31 | I | $\overline{\text{SLTSW}}$ | Sled limit switch. (Innermost position : "L") |
| 19 | P32 | I | $\overline{\text{OPNSW}}$ | Tray open switch. (Open : "L") |
| 20 | P33 | I | $\overline{\text{CLSSW}}$ | Tray close switch. (Close : "L") |
| 21 | P60 | I/O | BUSY | Serial BUSY signal input/output terminal. |
| 22 | P61 | I/O | SDATA | Serial DATA signal input/output terminal. |
| 23 | P62 | O | CLSM | Tray motor close terminal. |
| 24 | P63 | O | OPNM | Tray motor open terminal. |
| 25 | P40 | O | DATA | Signal processor and servo IC control output terminal. |
| 26 | P41 | O | XLT | Signal processor and servo IC control output terminal. |
| 27 | P42 | O | CLK | Signal processor and serco IC control output terminal. |
| 28 | P43 | O | $\overline{\text{LDC}}$ | Laser ON/OFF signal output terminal. (Active "L") |
| 29 | PPO | – | – | Not used. |
| 30, 31 | X1, X2 | I/O | X1, X2 | System clock input/output terminals. |
| 32 | VSS | – | VSS | GND. |
| 33, 34 | XT1, XT2 | – | – | Not used. |
| 35 ~ 38 | P50 ~ P53 | I | KD0 ~ KD3 | Input terminals for key return signals from key matrix. |
| 39 | RESET | I | $\overline{\text{RESET}}$ | Reset input terminal. (Active "L") |
| 40 ~ 48 | T0 ~ T8 | O | G9 ~ G1 | FL digit control terminals. |
| 49 ~ 51 | T9 ~ T11 | O | – | Not used. |
| 52 | S13 | O | H.SPD LED | Double-speed play mode display LED. (Active "H") |
| 53 | S12 | O | H.SPD SW | Double-speed play mode selector switch. (Active "H") |
| 54, 55 | S11, S10 | O | l, k | FL segment control terminals. |
| 56 | VLOAD | I | VLOAD | FL driver negative power supply. (–30V) |
| 57 | VPRE | I | VPRE | FL predriver power supply. |
| 58 ~ 63 | S9 ~ S4 | O | j ~ e | FL segment control terminals. (Also used for key-scan signals) |
| 64 | VDD | I | VDD | Power supply. (+5V) |

# CIRCUIT DESCRIPTION

## 5. RF AMP CXA1081S (X32-1542-71: IC1)

### General

The CXA1081S is an IC developed for use in Compace Disc players. It incorporates a 3-spot optical pickup RF output amplifier, a focusing error amplifier, a tracking error amplifier, and other signal processing circuitry, such as focus OK, mirror, defect, and EFM comparator circuits, as well as a laser diode APC (Automatic Power Control) circuit.

### Features

- Operates on a signal +5 V power supply, as well as on a ±5 V dual-voltage power supply.
- Low power consumption (100 mW with ±5 V, 50 mW with +5 V).
- An APC circuit which accepts either a P-sub or N-sub laser diode.
- A minimum of external parts required.
- A disc defect detector circuit for improved playability.

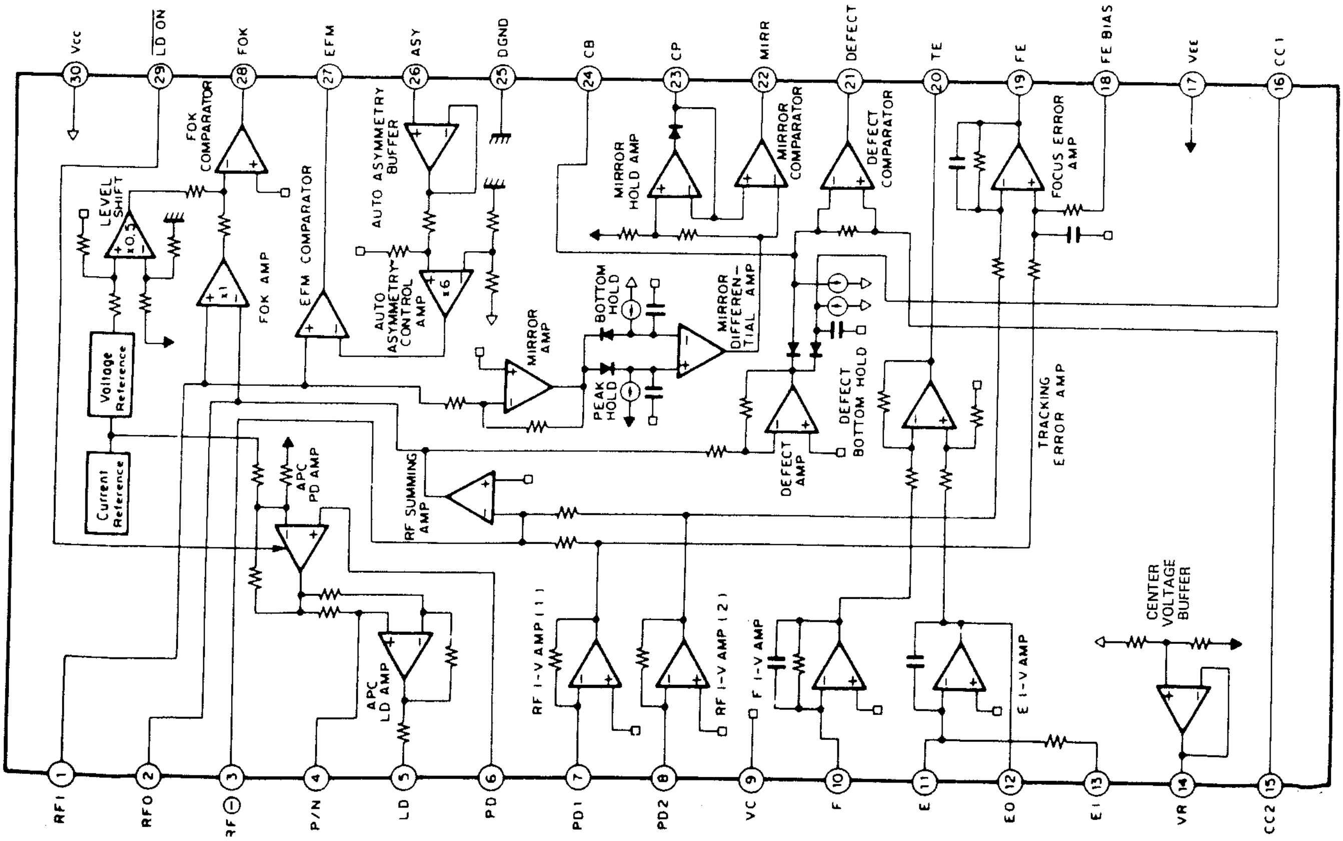
### Structure

Bipolar silicon monolithic IC

### Functions

- RF amplifier
- Focus OK detector circuit
- Mirror detector circuit
- Tracking error amplifier
- Defect detector circuit
- APC circuit
- EFM comparator
- Auto asymmetry control amplifier

### 5-1. Block diagram



30 Vcc
29 LD ON
28 FOK
27 EFM
26 ASY
25 DGND
24 CB
23 CP
22 MIRR
21 DEFECT
20 TE
19 FE
18 FE BIAS
17 VEE
16 CC1
FOK COMPARATOR
LEVEL SHIFT
×0.5
AUTO ASYMMETRY BUFFER
EFM COMPARATOR
FOK AMP
×1
AUTO ASYMMETRY CONTROL AMP
×6
MIRROR HOLD AMP
MIRROR COMPARATOR
DEFECT COMPARATOR
FOCUS ERROR AMP
BOTTOM HOLD
PEAK HOLD
MIRROR AMP
MIRROR DIFFEREN-TIAL AMP
DEFECT BOTTOM HOLD
DEFECT AMP
TRACKING ERROR AMP
Voltage Reference
Current Reference
APC PD AMP
RF SUMMING AMP
APC LD AMP
RF I-V AMP (1)
RF I-V AMP (2)
F I-V AMP
E I-V AMP
CENTER VOLTAGE BUFFER
1 RFI
2 RFO
3 RF⊖
4 P/N
5 LD
6 PD
7 PD1
8 PD2
9 VC
10 F
11 E
12 EO
13 EI
14 VR
15 CC2

# CIRCUIT DESCRIPTION

## 5-2. Explanation of terminals (VCC = 2.5V, VEE = DGND = –2.5V, VC = GND)

| Terminal No. | Terminal name | I/O | DC voltage (V) | Function |
|---|---|---|---|---|
| 1 | RFI | I | 0 | Input pin for the C-coupled signal output from the RF summing amplifier |
| 2 | RFO | O | $V_{RFO}$ | RF summing amplifier output pin. Used as the check point for the eye pattern |
| 3 | RF⊖ | I | 0 | RF summing amplifier feedback input pin |
| 4 | P/N | I | 0 (VC) | P-sub/N-sub select pin for the LD (Laser Diode) (DC voltage: in N-sub mode) |
| 5 | LD | O | −1.8 | *APC LD amplifier output pin. (DC voltage: PD open in N-sub mode) |
| 6 | PD | I | 0 | *APC LD amplifier input pin. (DC voltage: open) |
| 7 | PD1 | I | 0 | RF I-V amplifier (1) inverted input pin<br>Current input by connecting to the photodiode A + C terminal |
| 8 | PD2 | I | 0 | RF I-V amplifier (2) inverted input pin<br>Current input by connecting to the photodiode B + D terminal. |
| 9 | VC | – | 0 | Connected to GND when using a positive (+)/negative (−) dual-voltage power supply.<br>Connected to VR (pin 14) when using a single-voltage power supply |
| 10 | F | I | 0 | F I-V amplifier inverted input pin<br>Current input by connecting to the photodiode F terminal |
| 11 | E | I | 0 | E I-V amplifier inverted input pin<br>Current input by connecting to the photodiode E terminal |
| 12 | EO | O | 0 | E I-V amplifier output pin. |
| 13 | EI | I | 0 | E I-V amplifier feedback input pin. For E I-V amplifier gain adjustment. |
| 14 | VR | O | $V_{CVO}$ | DC voltage output pin of $(V_{CC} + V_{EE})/2$. |
| 15 | CC2 | I | 1.0 | Input pin for the C-coupled signal output from the defect bottom hold |
| 16 | CC1 | O | 1.2 | Defect bottom hold output pin |
| 17 | $V_{EE}$ | – | −2.5 | Connected to the negative power supply when using a positive (+)/negative (−) dual-voltage power supply. Connected to GND when using a single-voltage power supply |
| 18 | FE BIAS | I | 0 | Bias pin on the focus error amplifier non-inverted side<br>For CMR adjustment of the focus error amplifier |
| 19 | FE | O | $V_{FEO}$ | Focus error amplifier output pin |
| 20 | TE | O | $V_{TEO}$ | Tracking error amplifier output pin. |
| 21 | DEFECT | O | $V_{DFCTL}$ | Defect comparator output pin. (DC voltage: connected to a 10 k-ohm load) |
| 22 | MIRR | O | $V_{MIRL}$ | Mirror comparator output pin. (DC voltage: connected to a 10 k-ohm load) |
| 23 | CP | I | −1.3 | Mirror hold capacitor output pin.<br>Mirror comparator non-inverted input |
| 24 | CB | I | 0 | Defect bottom hold capacitor connect pin. |
| 25 | DGND | – | −2.5 | Connected to GND when using a positive (+)/negative (−) dual-voltage power supply<br>Connected to GND ($V_{EE}$) when using a single-voltage power supply |
| 26 | ASY | I | – | Auto asymmetry control input pin. |
| 27 | EFM | O | $V_{EFMH}$ | EFM comparator output pin. (DC voltage: connected to a 10 k-ohm load) |
| 28 | FOK | O | $V_{FOKL}$ | FOK comparator output pin. (DC voltage: connected to a 10 k-ohm load). |
| 29 | LD ON | I | −2.5<br>(DGND) | LD ON/OFF select pin. (DC voltage: when LD ON) |
| 30 | $V_{CC}$ | – | 2.5 | Positive power supply. |

*APC: Automatic Power Control

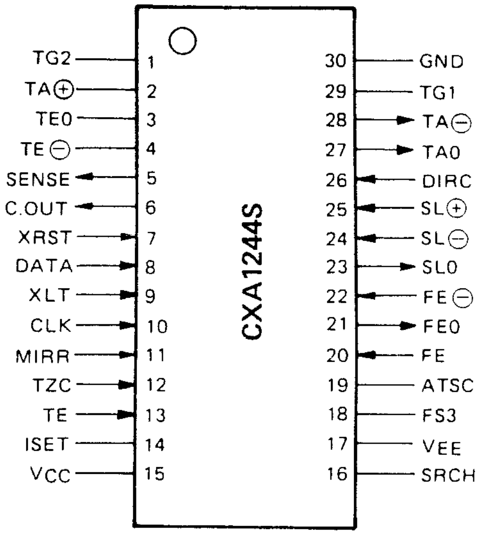
## 6. Servo control CXA1244S (X32-1542-71: IC2)

CXA1244S is a bipolar IC developed for servo of compact disc (CD) players, and it provides the following functions.

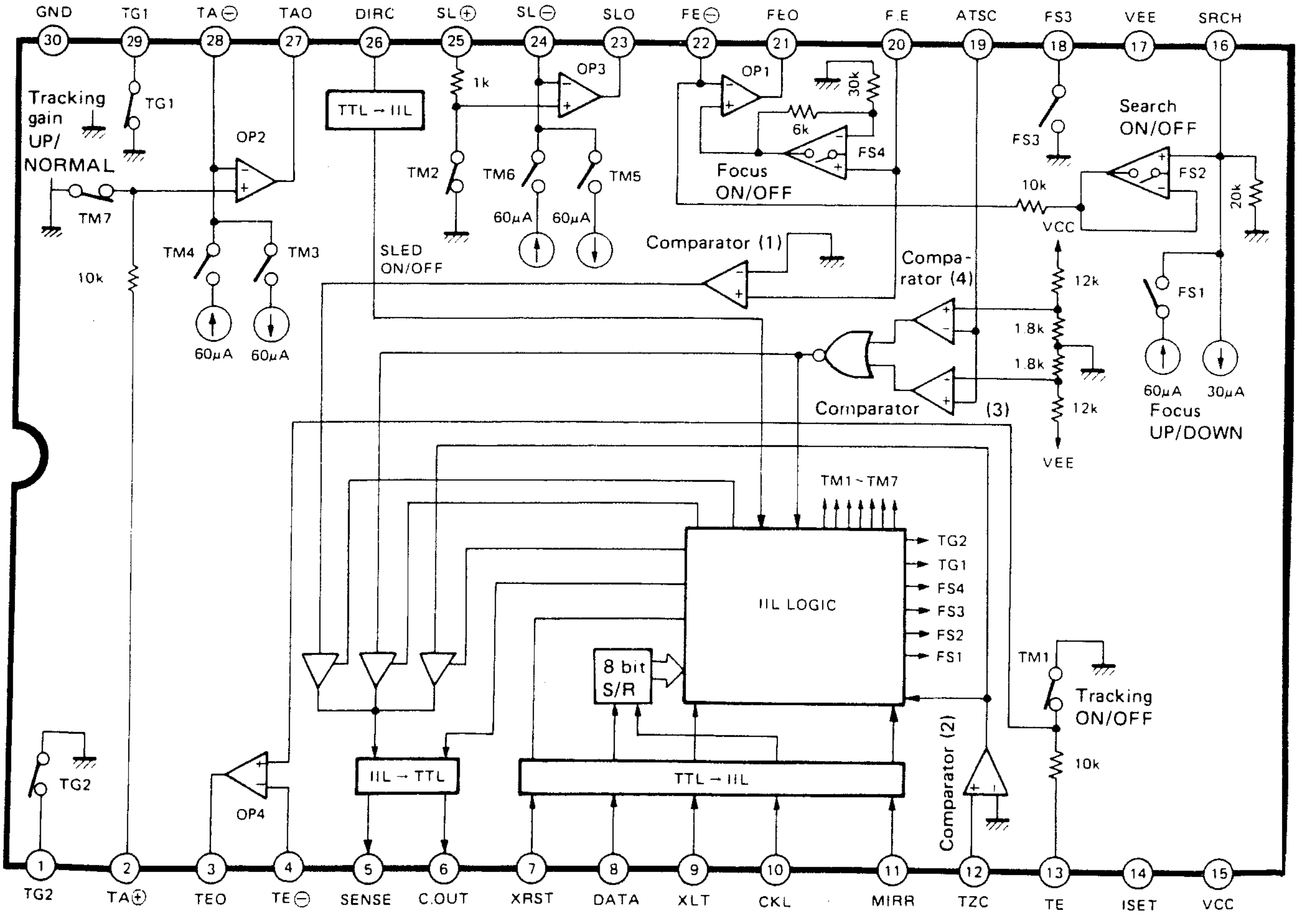
- ○Focus control (search ON/OFF, gain control)
- ○Tracking control (servo ON/OFF, single track jump, multiple track jump, gain control, phase compensation control, brake circuit)
- ○ Sled control (servo ON/OFF, fast forward, fast reverse)

Servo function of each of focus, tracking and sled as well as random access operation are realized through control by microcomputer. Furthermore, the serial data bus can be shared with CX23035.

### 6-1. Terminal connection diagram


CXA1244S
TG2 1
TA⊕ 2
TEO 3
TE⊖ 4
SENSE 5
C.OUT 6
XRST 7
DATA 8
XLT 9
CLK 10
MIRR 11
TZC 12
TE 13
ISET 14
VCC 15
SRCH 16
VEE 17
FS3 18
ATSC 19
FE 20
FEO 21
FE⊖ 22
SLO 23
SL⊖ 24
SL⊕ 25
DIRC 26
TAO 27
TA⊖ 28
TG1 29
GND 30

### 6-2. Block diagram


GND
TG1
TA⊖
TAO
DIRC
SL⊕
SL⊖
SLO
FE⊖
FEO
F.E
ATSC
FS3
VEE
SRCH
Tracking gain UP/NORMAL
TG1
TM7
OP2
TM4
TM3
10k
60μA
60μA
TTL→IIL
1k
OP3
TM2
TM6
TM5
60μA
60μA
SLED ON/OFF
OP1
30k
6k
FS4
Focus ON/OFF
Comparator (1)
Compa-rator (4)
FS3
10k
VCC
Search ON/OFF
FS2
20k
12k
1.8k
1.8k
12k
VEE
FS1
60μA
30μA
Focus UP/DOWN
Comparator (3)
TM1~TM7
IIL LOGIC
TG2
TG1
FS4
FS3
FS2
FS1
8 bit S/R
TM1
Tracking ON/OFF
10k
Comparator (2)
TG2
OP4
IIL→TTL
TTL→IIL
TG2
TA⊕
TEO
TE⊖
SENSE
C.OUT
XRST
DATA
XLT
CKL
MIRR
TZC
TE
ISET
VCC

## CIRCUIT DESCRIPTION

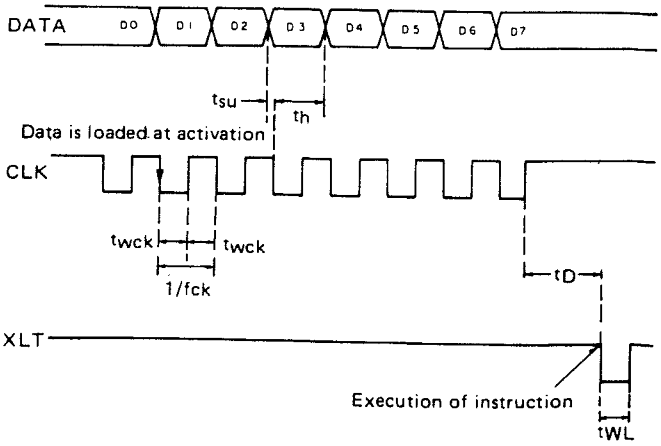
### 6-3. Explanation of terminals

| Terminal No. | Terminal name | I/O | Functions |
|---|---|---|---|
| 1 | TG2 | | Tracking amplifier gain switching terminal. GND level. |
| 2 | TA ⊕ | | Non-inverted input of operational amplifier 2. |
| 3 | TEO | | Output of operational amplifier 4. |
| 4 | TE ⊖ | O | Inverted input of operational amplifier 4. |
| 5 | SENSE | O | Output of SSP internal status that corresponds to ADDRESS of CPU → SSP.<br>(Changes in accordance with ADDRESS content of internal serial register.) See Note 1. |
| 6 | C. OUT | O | Signal output for counting number of tracks at the time of high speed access. |
| 7 | XRST | I | All internal registers are cleared when CPU → SSP "L".<br>Connected with CPU RESET. See Note 2. |
| 8 | DATA | I | Serial data transmission of CPU → SSP. Input is made from LSB. D0~D7. |
| 9 | XLT | I | Latch of serial data of CPU → SSP. (The contents of internal serial register are transmitted to each address decoded latch.) Transmission at "L". Change to "H" occurs immediately after execution because no edge trigger is produced. |
| 10 | CLK | I | CPU → SSP serial data transmission block. Data is read at falling.<br>"H" level before and after transmission. |
| 11 | MIRR | I | Mirror signal input from RF amplifier. |
| 12 | TZC | I | Tracking error signal is input with C couple. The time constant is determined by one single track jump, but it is usually around 2kHz. |
| 13 | TE | I | Tracking error signal input. |
| 14 | ISET | | Setting of current level for determining focus search voltage, tracking jump voltage and thread feed voltage. |
| 15 | Vcc | | Power supply terminal. Normally −5V. |
| 16 | SRCH | | The condenser for determining the time constant of charge/discharge waveform for focus search is connected. |
| 17 | VEE | | Power supply terminal. Normally −5V. |
| 18 | FS3 | | Focus amplifier gain switching terminal. GND level. |
| 19 | ATSC | | Such information that a mechanical shock was applied to the player is input. Simply, a trakcing error is input through BPF. |
| 20 | FE | I | Input of focus error signal. |
| 21 | FEO | O | Output of operational amplifier 1. |
| 22 | FE ⊖ | I | Inverted input of operational amplifier 1. |
| 23 | SLO | O | Output of operational output 3. |
| 24 | SL ⊖ | I | Inverted input of operational amplifier 3. |
| 25 | SL ⊕ | I | Non-inverted input of operational amplifier 3. |
| 26 | DIRC | I | Used at the time of one track jump. Normally "H". The direction of the track jump pulse is reversed with "L". Setting is made in the normal tracking mode by changing to "H".<br>"L" for a fixed length of time with detection of activation, deactivation of TZC. |
| 27 | TAO | O | Output of operational amplifier 2. |
| 28 | TA ⊖ | O | Inverted input of operational amplifier 2. |
| 29 | TG1 | | Tracking amplifier gain switching terminal. GND level. |
| 30 | GND | | GND terminal of IC. |

**Note 1 : SENSE terminal output**

| Serial data upper 4 bits | ADDRESS content | SENSE terminal output | Explanation |
|---|---|---|---|
| 0 0 0 0 | FOCUS CONTROL | FZC | "H" when focus zero cross, Focus erro voltage is 0V or higher. Used at the time of FOCUS PULL operation. |
| 0 0 0 1 | TRACKING CONTROL | AS | "H" when the ATSC input level exceeds the wind comparator level ($V_{TH} = \pm V_{cc} \times 13\%$) But this is not used in this equipment. |
| 0 0 1 0 | TRACKING MODE | TZC | Judgement output of positive or negative of tracking zero cross, tracking error.<br>When used at the time of single track jump, DIRC is reduced to "L" on detection of TZC ↑, in FWD JUMP or on detection of TZC ↓ in REV JUMP. |

**Note 2 : Digital unit timing chart**



### 6-4. System control

| COMMAND | ADDRESS | | | | DATA | | | | SENSE |
|---|---|---|---|---|---|---|---|---|---|
| | D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 | |
| FOCUS CONTROL | 0 | 0 | 0 | 0 | FS4 FOCUS ON | FS3 GAIN DOWN | FS2 SEARCH ON | FS1 SEARCH UP | FZC |
| TRACKING CONTROL | 0 | 0 | 0 | 1 | ANTI SHOCK | BREAK ON | TG2 GAIN | TG1* SET | AS |
| TRACKING MODE | 0 | 0 | 1 | 0 | TRACKING* MODE | | SLED* MODE | | TZC |

GAIN SET* TG1, TG2 may be set independently.
In the case of ANTI SHOCK = 1 (00011XXX), both TG1, TG2
are inverted when ANTI SCHOCK = "H".

SLED MODE *

| | D1 | D0 |
|---|---|---|
| OFF | 0 | 0 |
| SERVO ON | 0 | 1 |
| FWD MOVE | 1 | 0 |
| REV MOVE | 1 | 1 |

TRACKING MODE *

| | D3 | D2 |
|---|---|---|
| OFF | 0 | 0 |
| SERVO ON | 0 | 1 |
| FWD JUMP | 1 | 0 |
| REV JUMP | 1 | 1 |

# CIRCUIT DESCRIPTION

## 7. Digital signal processor: CXD1135QZ (X32-1542-72: IC3)

**General**

The CXD1135QZ is a digital signal processing LSI for a Compact Disc player, and has the following functions.

1. Bit clock reproduction by an EFM-PLL circuit
2. EFM data demodulation
3. Frame sync signal detection, protection and insertion
4. Powerful error detection and correction
5. Interpolation with an average value, or by holding the previous value
6. Demodulation of a sub code signal, error detection of a sub code Q
7. Spindle motor CLV servo
8. 8-bit tracking counter
9. CPU interface with a serial bus
10. Sub code Q register
11. Digital filter
12. Digital audio interface output

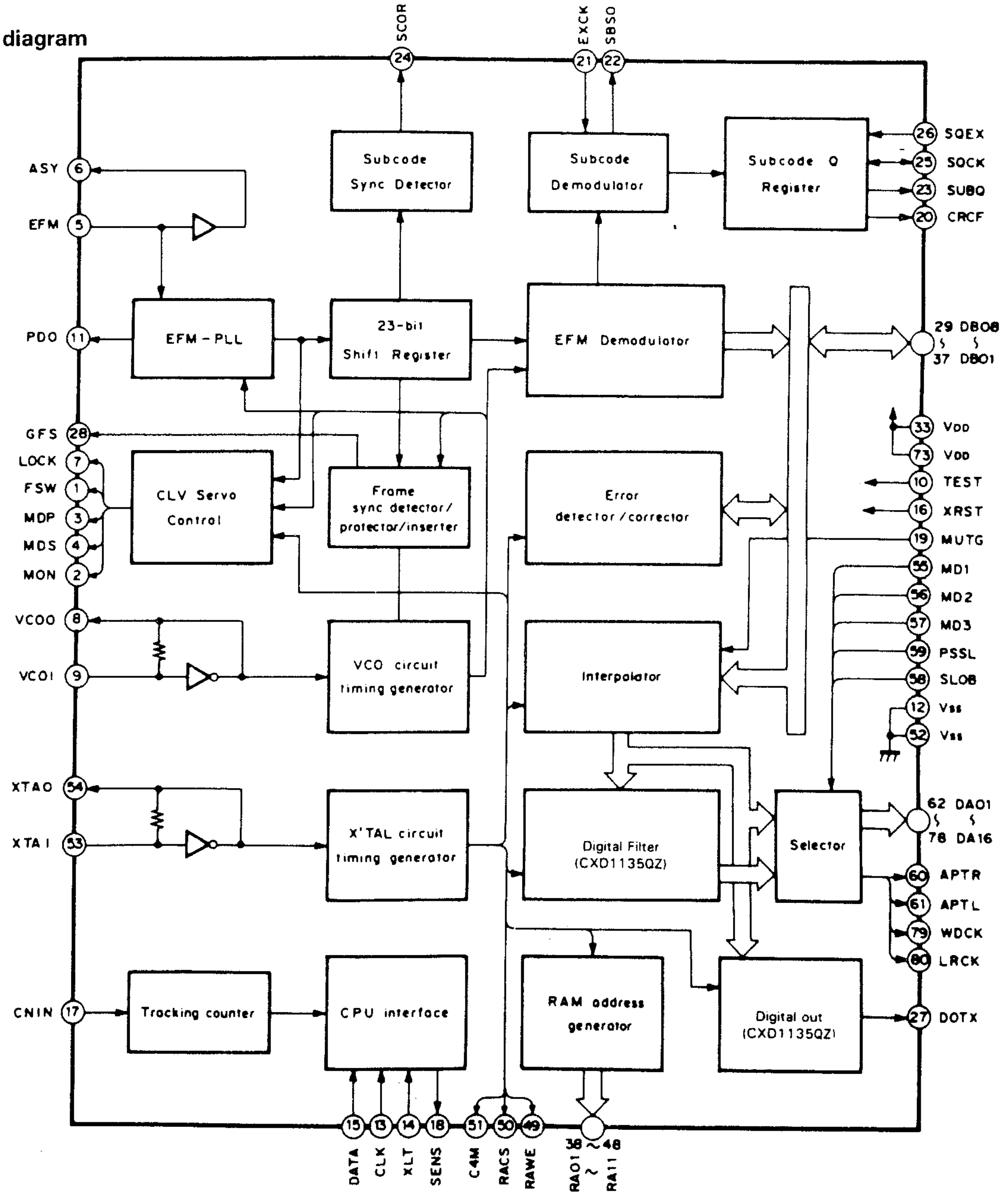
**Features**

- All digital signals used in playback can be processed using only a single chip.
- An aperture-correction digital filter is built in.

**Structure**

CMOS IC

### 7-1. Block diagram


SCOR
EXCK
SBSO
24
21
22
Subcode Sync Detector
Subcode Demodulator
Subcode Q Register
26 SQEX
25 SQCK
23 SUBQ
20 CRCF
ASY 6
EFM 5
PDO 11
EFM-PLL
23-bit Shift Register
EFM Demodulator
29 DB08
37 DB01
GFS 28
LOCK 7
FSW 1
MDP 3
MDS 4
MON 2
CLV Servo Control
Frame sync detector/protector/inserter
Error detector/corrector
33 VDD
73 VDD
10 TEST
16 XRST
19 MUTG
55 MD1
56 MD2
57 MD3
59 PSSL
58 SLOB
12 Vss
52 Vss
VCOO 8
VCOI 9
VCO circuit timing generator
Interpolator
XTAO 54
XTAI 53
X'TAL circuit timing generator
Digital Filter (CXD1135QZ)
Selector
62 DA01
78 DA16
60 APTR
61 APTL
79 WDCK
80 LRCK
CNIN 17
Tracking counter
CPU interface
RAM address generator
Digital out (CXD1135QZ)
27 DOTX
15 DATA
13 CLK
14 XLT
18 SENS
51 C4M
50 RACS
49 RAWE
38～48
RA01 ～ RA11

### 7-2. Explanation of terminals

| Terminal No. | Terminal name | I/O | Function |
|---|---|---|---|
| 1 | FSW | O | Time constant switching output of output filter of spindle motor |
| 2 | MON | O | ON/OFF control output of spindle motor. |
| 3 | MDP | O | Drive output of spindle motor. Rough speed control in CLV-S mode and phase control in CLV-P mode |
| 4 | MDS | O | Drive output of spindle motor. Speed control in CLV-P mode |
| 5 | EFM | I | EFM signal input from RF amplifier. |
| 6 | ASY | O | Output for controlling the slice level of EFM signal. |
| 7 | LOCK | O | Samples the GFS signal with WFCK/16, and outputs "H" when the level is high<br>When it is "L" for eight times, in arrow, outputs "L". |
| 8 | VCOO | O | VCO output. f = 8.6436 MHz when locked to EFM signal |
| 9 | VCOI | I | VCO input |
| 10 | TEST | I | (0 V) |
| 11 | PDO | O | Phase comparison output of EFM signal and VCO/2. |
| 12 | Vss | — | GND (0 V) |
| 13 | CLK | I | Serial data transmission clock input from CPU. Data is latched at rising edge of a clock |
| 14 | XLT | I | Latch input from CPU. Data (serial data from CPU) from the 8 bit shift register is latched in each register |
| 15 | DATA | I | Serial data input from CPU. |
| 16 | XRST | I | System reset input. Reset at "L". |
| 17 | CNIN | I | Input of tracking pulse. |
| 18 | SENS | O | Output of internal status in correspondence to the address |
| 19 | MUTG | I | Muting input. In the case when ATTM of internal register A is "L".<br>Normal status when MUTG is "L" or soundless state when it is "H" |
| 20 | CRCF | O | Output of result of CRC check of sub code Q. |
| 21 | EXCK | I | Clock input for sub code serial output. |
| 22 | SBSO | O | Sub code serial output. |
| 23 | SUBQ | O | Sub code Q output. |
| 24 | SCOR | O | Sub code sync S0 + S1 output. |
| 25 | SQCK | I/O | Sub code Q read-off clock. |
| 26 | SQEX | I | SQCK select input. |
| 27 | DOTX | O | DIGITAL OUT output. (Outputs the $\overline{\text{WFCK}}$ signal when CXD1130Q or DO is off) |
| 28 | GFS | O | Display output of frame sync lock status. |
| 29 | DB08 | I/O | Data pin of external RAM. DATA8 (MSB) |
| 30 | DB07 | I/O | Data pin of external RAM. DATA7 |
| 31 | DB06 | I/O | Data pin of external RAM. DATA6 |
| 32 | DB05 | I/O | Data pin of external RAM. DATA5 |
| 33 | VDD | — | Power supply (+5 V) |
| 34 | DB04 | I/O | Data pin of external RAM. DATA4 |
| 35 | DB03 | I/O | Data pin of external RAM. DATA3 |
| 36 | DB02 | I/O | Data pin of external RAM. DATA2 |
| 37 | DB01 | I/O | Data pin of external RAM. DATA1 (LSB) |
| 38 | RA01 | O | Address output of external RAM. ADDR01 (LSB) |
| 39 | RA02 | O | Address output of external RAM. ADDR02 |
| 40 | RA03 | O | Address output of external RAM. ADDR03 |
| 41 | RA04 | O | Address output of external RAM. ADDR04 |
| 42 | RA05 | O | Address output of external RAM. ADDR05 |
| 43 | RA06 | O | Address output of external RAM. ADDR06 |

# CIRCUIT DESCRIPTION

| Terminal No. | Terminal name | I/O | Function |
|---|---|---|---|
| 44 | RA07 | O | Address output of external RAM. ADDR07 |
| 45 | RA08 | O | Address output of external RAM. ADDR08 |
| 46 | RA09 | O | Address output of external RAM. ADDR09 |
| 47 | RA10 | O | Address output of external RAM. ADDR10 |
| 48 | RA11 | O | Address output of external RAM. ADDR11 (MSB) |
| 49 | RAWE | O | Write Enable signal output to external RAM. (Active at "L"). |
| 50 | RACS | O | Chip select signal output to external RAM. (Active at "L") |
| 51 | C4M | O | Crystal dividing output. f = 4.2336 MHz. |
| 52 | $V_{SS}$ | — | GND (0 V). |
| 53 | XTAI | I | Crystal oscillator input. f = 8.4672 MHz or 16.9344 MHz depending on the mode selected |
| 54 | XTAO | O | Crystal oscillator output. f = 8.4672 MHz or 16.9344 MHz depending on the mode selected |
| 55 | MD1 | I | Mode select input 1. |
| 56 | MD2 | I | Mode select input 2. |
| 57 | MD3 | I | Mode select input 3. |
| 58 | SLOB | I | Audio data output code select input. 2's complement output when "L", offset binary output when "H" |
| 59 | PSSL | I | Audio data output mode select input. Serial output when "L", parallel output when "H" |
| 60 | APTR | O | Aperture compensation control output. "H" when R-ch. |
| 61 | APTL | O | Aperture compensation control output. "H" when L-ch. |
| 62 | DA01 | O | DA01 (parallel audio data LSB) output when PSSL = "H", C1F1 output when PSSL = "L" |
| 63 | DA02 | O | DA02 output when PSSL = "H", C1F2 output when PSSL = "L". |
| 64 | DA03 | O | DA03 output when PSSL = "H", C2F1 output when PSSL = "L" |
| 65 | DA04 | O | DA04 output when PSSL = "H", C2F2 output when PSSL = "L". |
| 66 | DA05 | O | DA05 output when PSSL = "H", C2FL output when PSSL = "L" |
| 67 | DA06 | O | DA06 output when PSSL = "H", C2PO output when PSSL = "L" |
| 68 | DA07 | O | DA07 output when PSSL = "H", RFCK output when PSSL = "L". |
| 69 | DA08 | O | DA08 output when PSSL = "H", WFCK output when PSSL = "L". |
| 70 | DA09 | O | DA09 output when PSSL = "H", $\overline{\text{PLCK}}$ output when PSSL = "L" |
| 71 | DA10 | O | DA10 output when PSSL = "H", UGFS output when PSSL = "L". |
| 72 | DA11 | O | DA11 output when PSSL = "H", GTOP output when PSSL = "L". |
| 73 | $V_{DD}$ | — | Power supply (+5 V). |
| 74 | DA12 | O | DA12 output when PSSL = "H", RAOV output when PSSL = "L". |
| 75 | DA13 | O | DA13 output when PSSL = "H", C4LR output when PSSL = "L". |
| 76 | DA14 | O | DA14 output when PSSL = "H", $\overline{\text{C210}}$ output when PSSL = "L". |
| 77 | DA15 | O | DA15 output when PSSL = "H", C210 output when PSSL = "L". |
| 78 | DA16 | O | DA16 (parallel audio data MSB) output when PSSL = "H", DATA output when PSSL = "L". |
| 79 | WDCK | O | Strobe signal output. 176.4 kHz when DF is ON, 88.2 kHz with CXD1125Q or when DF is OFF. |
| 80 | LRCK | O | Strobe signal output. 88.2 kHz when DF is ON, 44.1 kHz with CXD1125Q or when DF is OFF. |

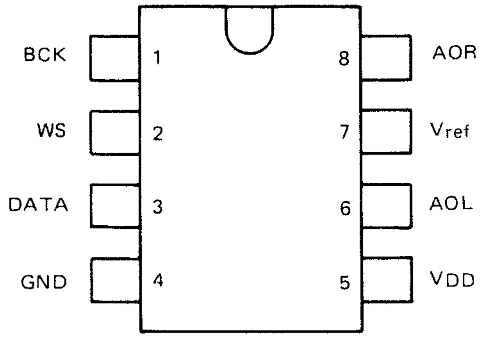
**Notes:**

C1F1 :
C1F2 : Error correction status monitor output for C1 decode.
C2F1 :
C2F2 : Error correction status monitor output for C2 decode.
C2FL : Correction status output. Goes "H" when the currently corrected C2 series data cannot be corrected.
C2PO : C2 pointer signal. Synchronized to the audio data output.
RFCK : Read frame clock output. 7.35 MHz when locked to the crystal line.
WFCK : Write frame clock output. 7.35 MHz when locked to the crystal line.
$\overline{\text{PLCK}}$ : VCO/2 output. f = 4.3218 MHz when locked to the EFM signal.
UGFS : Non-protected frame sync pattern output.
GTOP : Frame sync protect status display output.
RAOV : ±4 frame jitter absorption RAM overflow and underflow display output.
C4LR : Strobe signal. 352.8 kHz when DF is ON, 176.4 kHz with CXD1125Q or when DF is OFF.
$\overline{\text{C210}}$ : C210 invert output.
C210 : Bit clock output. 4.2336 MHz when DF is ON, 2.1168 MHz with CXD1125Q or when DF is OFF.
DATA : Audio signal serial data output.

# CIRCUIT DESCRIPTION

## 8. D/A converter: TDA1543A (X32-1542-71: IC11)

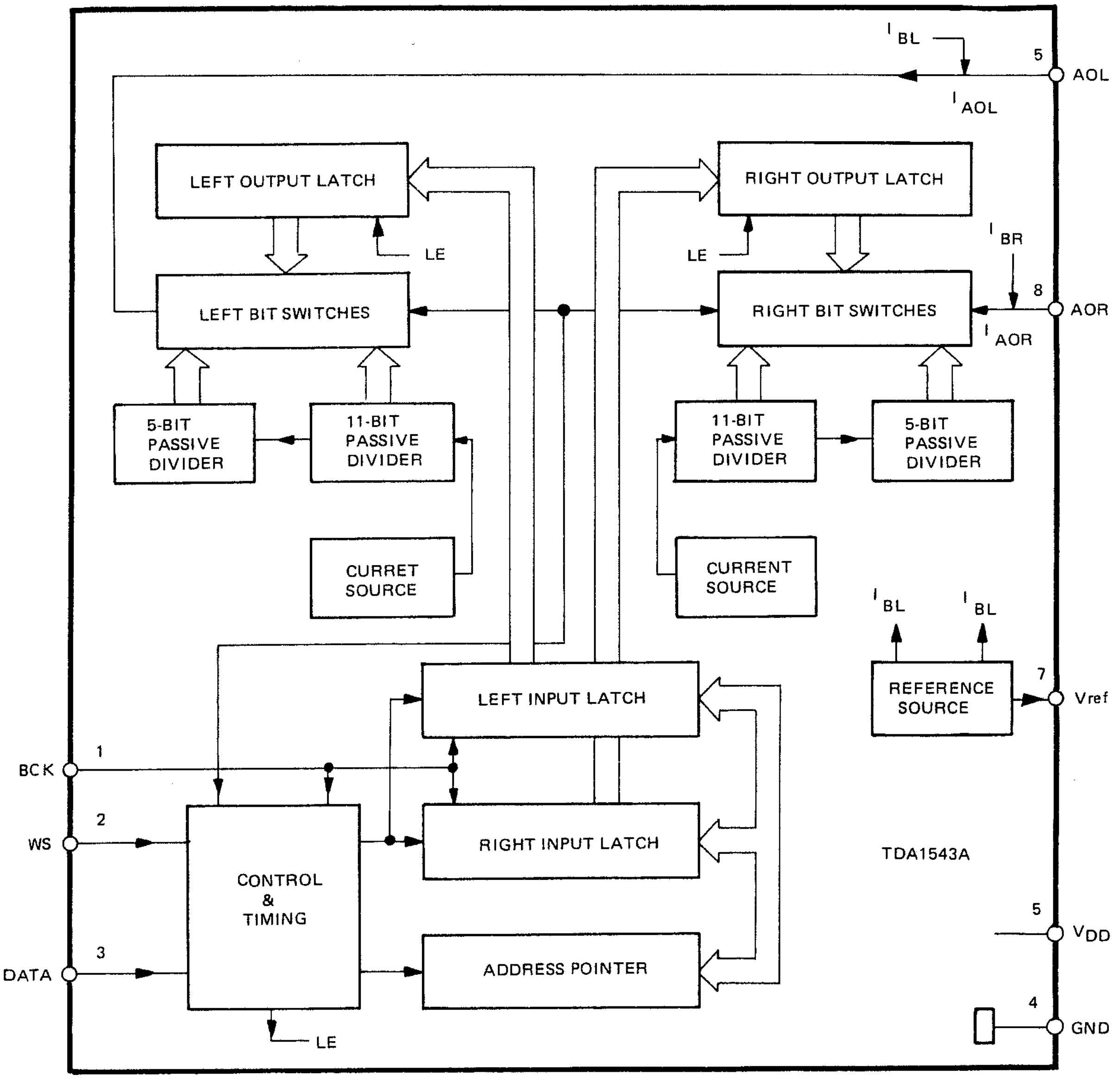
### 8-1. Terminal connection diagram


BCK
1
WS
2
DATA
3
GND
4
8
AOR
7
Vref
6
AOL
5
VDD

### 8-2. Explanation of terminals

| Pin No. | Pin name | Function |
|---|---|---|
| 1 | BCK | Bit Clock Input |
| 2 | WS | Word Select Input |
| 3 | DATA | Data Input |
| 4 | GND | Ground |
| 5 | VDD | +5V Supply Voltage |
| 6 | AOL | Left Channel Output |
| 7 | Vref | Reference Voltage Output |
| 8 | AOR | Right Channel output |

### 8-3. Block diagram


IBL
5
AOL
IAOL
LEFT OUTPUT LATCH
RIGHT OUTPUT LATCH
LE
LE
IBR
8
AOR
IAOR
LEFT BIT SWITCHES
RIGHT BIT SWITCHES
5-BIT PASSIVE DIVIDER
11-BIT PASSIVE DIVIDER
11-BIT PASSIVE DIVIDER
5-BIT PASSIVE DIVIDER
CURRET SOURCE
CURRENT SOURCE
IBL
IBL
REFERENCE SOURCE
7
Vref
LEFT INPUT LATCH
BCK
1
WS
2
RIGHT INPUT LATCH
TDA1543A
CONTROL & TIMING
5
VDD
DATA
3
ADDRESS POINTER
4
GND
LE

# CIRCUIT DESCRIPTION

## DECK

### Deck Circuit Operation

Power to the microprocessor is supplied when the power cord is connected. When an amplifier POWER key is pressed, a system on code (25H) is sent from the amplifier microprocessor and the deck power is switched ON. When the POWER key is pressed again, a system-off code (26H) is sent and the deck power is switched OFF. The TIMER REC, DIRECTION MODE, and DOLBY NR keys are always effective irrespective of power settings (ON or OFF).

**(1) When system-on code is received**
The LED indicators go on 0.5 second after a system-on code is received. When the TIMER REC key set to OFF after 4 seconds and a tape is installed in either deck A or B (when a tape is installed in decks A and B, deck A has priority), the RXD-24 enters the TIMER PLAY mode. When a recording tape is installed in deck B with the TIMER REC key set to ON, the RXD-24 enters the TIMER REC mode. When a tape is not installed in either deck A or B, no operation is performed.
or B, no operation is performed.

**(2) When system-off code is received**
The FL and LED indicators go off, and deck operation stops if operating.

- Amplifier control

(1) A selector IC is selected by receiving a selector code from the amplifier.

(2) When the volume UP/DOWN key of the remote controller is pressed, a volume UP/DOWN code is output from the amplifier and the electrmotive volume control moves up or down. When the volume UP/DOWN key is released, a volume stop code is output from the amplifier. The electrmotive volume control operation stops.

### Initial Setting

| Item | Setting |
|---|---|
| DOLBY $\overline{R}$/P | PLAY |
| DOLBY ON/$\overline{OFF}$ | OFF |
| R/$\overline{P}$ | PLAY |
| $\overline{A}$/B | A |
| EQ SPEED | NORMAL |
| $\overline{REC MUTE}$ | ON |
| $\overline{LINE MUTE}$ | ON |
| $\overline{MUTE}$ | ON |
| $\overline{BIAS}$ | OFF |
| VU/$\overline{CCRS}$ | VU |
| NOR/$\overline{CrO_2}$ | NORMAL |
| $\overline{NOR}$/CrO$_2$ | NORMAL |
| X FADE | OFF |
| $\overline{FL}$ | OFF |
| SELECTOR | TUNER |
| ELECTROMOTIVE VOLUME | –15 dB |

1) Initial setting
When the power cord is disconnected, then connected again, the initial setting is entered.

### Test Mode

**(1) Setting and canceling**

Setting ① X28 board are strapped with a diode (14 -|◁- 13), the TEST1 mode is entered. When the PAUSE key is pressed or power to the system is switched OFF, the TEST1 mode is canceled.

Setting ② When the power cord is connected while the selector AUX key is held down, the TEST1 mode is entered. (The TEST mode cannot be entered by setting the TIMER REC switch to ON, however.) When the selector key is pressed or power to the system is switched OFF, the TEST1 mode is canceled.

Setting ③ X28 board are strapped with a diode (13 -▷|- 12) and the DOLBY NR key is pressed, the TEST2 mode is entered. When the PAUSE key is pressed or power to the system is switched OFF, the TEST2 mode is canceled.

**(2) Operation specifications**

(TEST1: Settings ① and ②)

A) PLAY operation test
TIMER REC switch is set to OFF. A cassette half is inserted in A, B DECK SYSTEM switch is set to ON.
About 4 seconds later A DECK acts in the order of FWD PLAY 5 seconds-HI SPEED 1,5 SECONDS-RVS PLAY 2 seconds-STOP.
Subsequently B DECK carries out an action similarly.

B) TIMER REC switch is set to ON. A recording possible cassette half is inserted in B DECK. SYSTEM switch is set to ON.
About 4 seconds later B DECK does REC LEVEL −22 dB 3 seconds REC, REC LEVEL − ∞ dB 5 seconds REC. After that it returns a volume to REC start position and act 8 seconds PLAY and do STOP.

C) Deck A half detection ignore and FWD PLAY
When the A RVS PLAY key is pressed, the FWD PLAY mode is entered even if a cassette half is not installed in deck A.

D) Three second REC and PLAY
When the REC key is pressed, the REC mode is maintained for 3 seconds. Then, the tape is wound to the REC starting position and the PLAY mode is entered. When the REC key is set to OFF 3 seconds before the REC key is held down, the tape is wound to the REC starting position and the PLAY mode is entered.

E) REC VR level
When power to the system is switched ON, the REC VR level is set to −22 dB. When the REC LEVEL UP/DOWN key is pressed, the REC VR level is set to − ∞, −22 dB, or 0 dB.

F) DIRECTION MODE SW test
When the ONE WAY MODE switch is set to ON, ◁ A ▷ ◁ B ▷ is displayed; when it is set to OFF, ◁ A ▷ ◁ B ▷ is displayed.

G) CCRS test
When the CCRS key is pressed, the REC level is set to 0 dB, the CCRS LED indicator blinks, and the REC PAUSE mode is entered. At that time, keys other than the B DECK STOP key are ineffective. When the STOP key is pressed, the CCRS LED indicator goes on and the CCRS setting state is entered. When the CCRS key is pressed with the CCRS LED indicator on the CCRS setting state is cancelled and the CCRS LED indicator goes off,

H) CROSS FADE test
When the X FADE key is pressed, FADE is displayed on the counter indicator. The FADE display is set ON or OFF each time the key is pressed.

I) Key input allowable time and LINE MUTE during CCRS setting
Key input is allowed 2 seconds after power to the system is switched ON (usually after 4 seconds).
In the test mode, the line is muted during CCRS setting.

(TEST 2: Setting ③)

J) All LED indicators ON
All LED indicators go on for approximately 1.5 seconds after power to the system is switched. ON.

K) Half detection switch ignore
Decks A and B half switches are ignored.

L) PLAY-to-REC direct selection
When the REC key is pressed in the PLAY mode, the REC mode is entered.

M) X FADE terminal (53-pin) ON/OFF
The X FADE terminal is set ON or OFF each time the X FADE terminal key is pressed.

N) Same as steps E) to I).

# CIRCUIT DESCRIPTION

| Key name | Function | Display |
|---|---|---|
| FWD PLAY "►"<br>(common to decks A and B) | With a cassette half, the tape is played in the forward direction. When this key is pressed during forward play, that one tune is repeated to play. While the other deck is in recording or recording pause, the operation of this key is disabled. | |
| RVS PLAY "◄"<br>(common to decks A and B) | With a cassette half, the tape is played in the reverse direction. When this key is pressed during reverse play, that one tune is repeated to play. While the other deck is in recording or recording pause, the operation of this key is disabled. | |
| FF "►►"<br>(common to decks A and B) | The tape is fast wound up to the right reel. When this key is pressed during play, the skip music scan is made, whereas when it is pressed during reverse recording, the re-recording standby mode is engaged. | |
| REW "◄◄"<br>(common to decks A and B) | The tape is wound up to the left reel. When this key is pressed during play, the skip music scan is made, whereas when it is pressed during forward recording, the re-recording standby ode is engaged. | |
| STOP "■"<br>(common to decks A and B) | All operation is stopped. | |
| REC "●/♦"<br>(deck B only) | Recording is made in the current head direction. If in recording, ARM is engaged. | REC indicator lights (● ).<br>Flickers during ARM and lights after termination (II ●). |
| PAUSE "II"<br>(common to decks A and B) | If in recording, the recording pause mode is engaged, while if in play, the play pause mode is engaged. | PAUSE indicator lights (II). |
| REC LEVEL UP | The recording level is raised up in steps of 1 dB from −∞ to 0 dB. When this key is pressed continuously for more than 0.35 second, the recording level is raised up in intervals of 0.12 second. | Example)<br>- -5dB |
| REC LEVEL DOWN | The recording level is lowered down in steps of 1 dB from 0 dB to −∞. When this key is pressed continuously for more than 0.35 second, the recording level is lowered down in intervals of 0.25 second. | Example)<br>- -17dB |
| CCRS (deck B only) | The CD recording level is automatically adjusted in synchronization with the CD player. | CCRS indicator flickers at high pitch. It flickers at low pitch after the completion of level setting or during edit recording. |
| X FADE<br>(deck B only) | At the time of CCRS, recording is made with overlapping section between tunes. | FADE. Original status is restored after 5 seconds. |

## CIRCUIT DESCRIPTION

| Key name | Function | Display |
|---|---|---|
| NOR SPEED DUBBING | Dubbing is made from deck A to B at normal speed.<br>When this key is pressed during normal dubbing, deck B enters ARM. When it is pressed again, normal dubbing is restored. | DUBB, $\boxed{\text{NOR}}$ and (B) REC (●) indicators light. During ARM, REC indicator only flickers. |
| HIGH SPEED DUBBING | Dubbing is made from decks A to B at double speed.<br>When this key is pressed during double-speed dubbing, deck B enters ARM. | DUBB, $\boxed{\text{HIGH}}$ and REC (●) indicators light. During ARM, (B) REC indicator only flickers. |
| One way mode switch | A following operation mode is selected at the time of auto stop detection.<br>ON ........ One-way operation<br>OFF ...... Endless operation | |
| Timer REC switch | The power-ON operation mode is set.<br>OFF ...... Play is made when provided with a cassette half. (Priority is given to deck A.)<br>ON ........ Recording is made when provided with a cassette half. | |
| Dolby switch | The Dolby noise reduction mode is set.<br>ON ........ Dolby B noise reduction ON<br>OFF ...... Dolby noise reduction OFF | |
| Cassette half detection switch | This switch turns ON when provided with a cassette half.<br>With this switch OFF, the operations of any key and the dubbing key of that deck are disabled. For deck B, the operations of the AUTO BIAS and CCRS keys are also disabled. | Example)<br>$\boxed{\text{A}}$ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬<br>Display for without cassette half on deck A |
| Forward recording enable switch | This switch turns ON when provided with a click for enabling recording in the forward direction. With this switch OFF, the forward recording is disabled. | |
| Reverse recording enable switch | This switch turns ON when provided with a click for enabling recording in the reverse direction. With this switch OFF, the reverse recording is disabled. | |

# CIRCUIT DESCRIPTION

| Function name | Key symbol | Function |
|---|---|---|
| Rewind play | "◀◀+▶"<br>or<br>"▶▶+◀" | After the tape is rewound up to the tape end, the first tune is searched for and then is played after its searching out. |
| Dash and play | ◀◀+▶▶ | When the no-tune state continues for more than 10 seconds during the play mode, the tape is cued. When the head of the next tune is thus scanned out, the play mode is restored. A full repeat function is also provided by means of the reverse mode switch.<br>ON ... One-side full repeat, 8 times |
| Zero stop | "◀◀+■"<br>or<br>"▶▶+■" | After the tape is rewound or fast forwarded until the counter goes to "0000", the tape stops. However, one deck is subject to the zero stop operation, after which the use of counter is changed to the counter of the other deck. Then, when the associated keys of that deck are pressed, this latter deck can also be subject to the zero stop operation parallelly. |

## 3. OTHER FUNCTIONS

### 1. Synchronous recording (CD player and cassette deck, or turntable and cassette deck)

The deck can know the current recording source by analyzing the selector code from the amplifier at any time. In addition, after the recording mode is entered, the recording source does not change because of the preceding item (2).

By virtue of these two principles, the deck can obtain synchronization by analyzing the code from the device from which recording is made at present.

**(a) Synchronous operation between CD player and cassette deck**

| CD operation<br>Deck status | Stop→play | Pause→play | Play→pause | Play→stop | Pause→stop | Play→tray open | Pause→tray open |
|---|---|---|---|---|---|---|---|
| **Recording (in tape run)** | Non change | Non change | ARM is entered. 4 seconds later, the recording pause mode is entered. | ARM is entered. 4 seconds later the tape stops. | ← | ← | ← |
| **ARM (auto recording mute)** | ARM is stopped, and recording is made. | ← | After the termination of the current ARM time, the recording pause mode is entered. | After the termination of the current ARM time, the stop mode is entered. | ← | ← | ← |
| **Recording pause** | The recording mode is entered. | ← | Non change | The stop mode is entered. | ← | ← | ← |

# CIRCUIT DESCRIPTION

**(b) Synchronous operation between turntable and cassette deck**

| Deck status<br>Turntable operation | Arm up→down (mute ON→OFF) | Arm down→up (mute OFF→ON) | Arm return to rest |
|---|---|---|---|
| **Recording (in tape run)** | Non change | ARM is entered. After the termination of ARM time (4 seconds later), the recording pause mode is entered. | ARM is entered. After the termination of ARM time (4 seconds later), the stop mode is entered. |
| **ARM (auto recording mute)** | ARM is stopped. The recording mode is restored. | After the termination of the current ARM time, the recording pause mode is entered. | After the termination of the current ARM time, the stop mode is entered. |
| **Recording pause** | The recording mode is entered. | Non change | The stop mode is entered. |

**Note: In case of (a), the muting is canceled after the CD player plays or it delays 2.2 seconds after output of start code. The aiming is that even when the deck is in operation transit at start of the CD player, the head section of the recording is protected from being muted.**

## 2. CCRS edit PRO (deck B exclusive feature)

Synchronous recording operations are performed by combined use of a CD player, an amplifier and the deck.

**(1)Normal recording**

The CD player is entered to the play mode and the deck, to the recording mode. Thus, the deck operates in synchronization with the operation of the CD player.

The following operation is also feasible due to the process prior to recording.

- When CCRS is already set (CCRS indicator in lighting)
  Of the deck, the recording level is set to the preset value, on which recording is then made. During recording, the recording level cannot be varied.

**(2)CCRS edit PRO**

To MIDI M-93, a cross fade recording feature is added besides fade out, erase and edit features.

(A)Fade out mode

Setting: Set the CD player to the track mode, and press the CCRS key of the deck

Operation:
- The deck issues the CCRS start code.
- When the CD player receives the CCRS start code, the CD player issues the CD standby code and enters the sampling operation to set the recording level.
  (a) Play is made for 15 seconds from the location of a length of 1 minutes prior to the end of tune Nos 1-3, or the end section of the final tune is played for 15 seconds.
- When the amplifier receives the CD standby code, its input selector is locked to the CD position to turn ON the $-\infty$ muting. When the deck receives the CD standby code, its electronic VR is set to "$-6$ dB" and at the same time the recording pause mode is entered to start the level detection.
  (b) A-D conversion is made. The data to attenuate by the amount by which the set value is exceeded is sent to the electronic VR. This process is repeatedly performed until the CD standby code is received again.

Level setting.
CCRS indicator flickers at intervals of 0.25 second.

- The CD player, after the termination of 15-second playback of the final tune, issues the CD standby code again to enter the process of a.
- When the deck receives the CD standby code of the second time, it terminates the level setting to perform the auto bias setting. After the completion of the auto bias setting, the deck enters the recording pause mode and at the same time issues the deck standby code.
- When the amplifier receives the deck standby code, the muting is turned OFF.
  When the CD player receives the deck standby code, it stops sampling to issue the CD start code. After 2.2 seconds, the CD player starts to play the tune of the smallest tune number.
- When the deck receives the CD start code, it enters the recording mode.
- The CD player issues the CD start code each time the tune number changes.
- When the deck receives the CD start code, it memorizes the then count value.

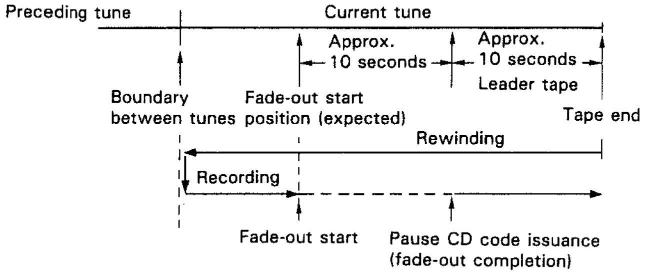
# CIRCUIT DESCRIPTION

- When the deck detects the tape end, it operates depending upon the location of the boundary between the current tune and the preceding tune as follows:

1) When the boundary is located more than 20 seconds prior to the tape end...

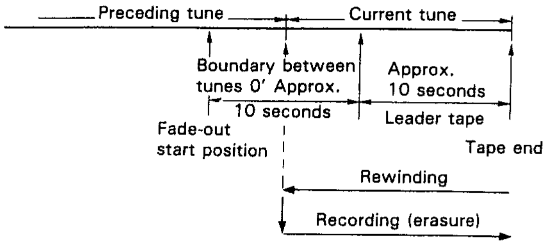
   The tape end code is issued and the tape is rewound to that location. Then, the recording mode is re-entered and the play CD code is issued.

   When the location prior 20 seconds to the tape end is arrived at, the fade-out operation is started. Thus, when the electronic VR setting goes to −∞, the pause CD code is issued.


Preceding tune
Current tune
Approx.
10 seconds
Approx.
10 seconds
Leader tape
Boundary between tunes
Fade-out start position (expected)
Tape end
Rewinding
Recording
Fade-out start
Pause CD code issuance (fade-out completion)

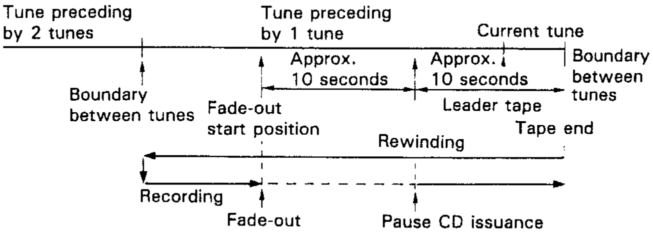
2) When the boundary between tunes is located between the fade-out start position and the leader tape...

   The tape end code is issued and the tape is rewound to that location. Then, the recording mode is entered, and erasure is made up to the tape end with recording mute ON.


Preceding tune
Current tune
Boundary between tunes 0' Approx.
10 seconds
Approx.
10 seconds
Leader tape
Fade-out start position
Tape end
Rewinding
Recording (erasure)

3) When the boundary between tunes is located in the leader tape section (except for the first tune)...

   The tape end back code is issued, and the tape is rewound to the boundary between the tune preceding by two tunes and the tune just preceding by one tune. Then, the recording mode is entered, and the play CD code is issued. When the location prior 20 seconds to the tape end is arrived at, the fade-out operation starts. Thus, when the electronic VR setting goes to −∞, the pause CD code is issued.


Tune preceding by 2 tunes
Tune preceding by 1 tune
Current tune
Approx.
10 seconds
Approx.
10 seconds
Boundary between tunes
Boundary between tunes
Fade-out start position
Leader tape
Tape end
Rewinding
Recording
Fade-out
Pause CD issuance

4) When the start position of the first tune is located in the leader tape section...

   The tape end code is issued, and the subsequent reverse operation is performed as it stands.

- When the tape end is reached again after erasure or fade-out operation at previous item 1), 2) or 3), or when previous step 4) is at work, a following operation is performed.

  ①When reverse recording or oneway mode is engaged, or when the reverse side of the tape is disabled from recording...

  stop code. The CCRS mode is canceled.

  ②Other than above item 1)

  The reverse recording mode is entered. After ARM is thus applied for 10 seconds, the play CD code is issued to start the fade-in operation from −∞.

### B) Erase mode

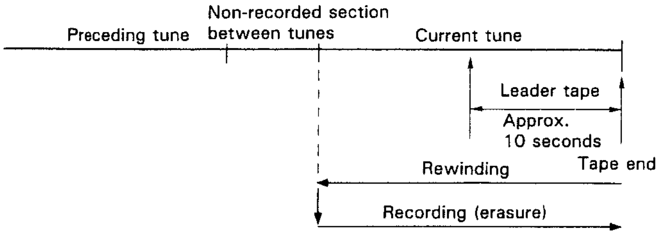
Setting: Set the CD player to the PGM mode, and after tune programming, press the CCRS key of the deck.

Operation:
- The level setting is the same as in "(a) Fade out mode".
- When the CD player receives the deck standby code, it searches for the first programmed tune to issue the CD start code. After 2.2 seconds, play of that tune is started.
- When the deck receives the CD start code, it enters the recordina mode.

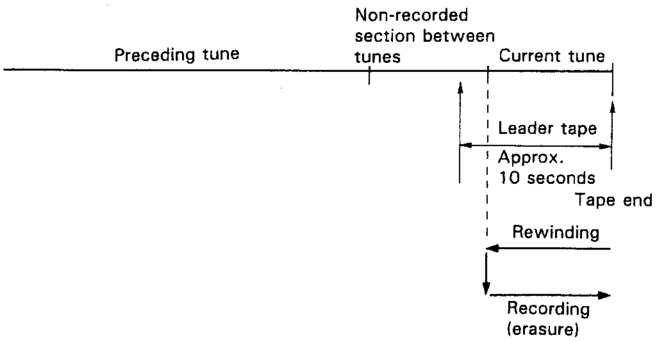
# CIRCUIT DESCRIPTION

- When the tune ends, the CD player issues the CD end code, and when the next tune starts, the CD player issues the CD start code.
- When the deck receives the CD end code and start code, it memorizes the then count values.
- When the deck detects the tape end, it performs depending upon the location of the boundary between tunes as follows:

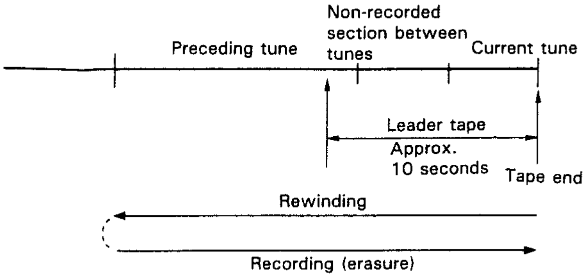
1) When play is made at present and the start position of that tune is prior to the leader tape section...
   The tape end code is issued, and the tape is rewound to the start position of that tune. Then, the recording mode is entered with recording mute kept ON (in which erasure is made).


Non-recorded section between tunes
Preceding tune
Current tune
Leader tape
Approx. 10 seconds
Rewinding
Tape end
Recording (erasure)

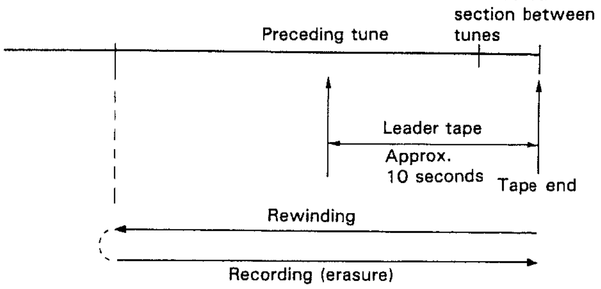
2) When play is made at present, the start position of that tune is located in the leader tape section and the end position of the preceding tune is prior to the leader tape section...
   The operation is the same as above 1).


Non-recorded section between tunes
Preceding tune
Current tune
Leader tape
Approx. 10 seconds
Tape end
Rewinding
Recording (erasure)

3) When play is made at present, the start position of that tune is located in the leader tape section and the end position of the preceding tune is also located in the leader tape section...
   The tape end back code is issued, and the tape is rewound to the start position of the preceding tune. Then, the recording mode is entered with recording mute kept ON (in which erasure is made).


Non-recorded section between tunes
Preceding tune
Current tune
Leader tape
Approx. 10 seconds
Tape end
Rewinding
Recording (erasure)

4) When a non-recorded section between tunes is engaged at present and the end position of the preceding tune is in the leader tape section...
   The tape end code is issued, and the tape is rewound to the start position of the preceding tune. The recording mode is entered with recording mute kept ON (in which erasure is made).


Non-recorded section between tunes
Preceding tune
Leader tape
Approx. 10 seconds
Tape end
Rewinding
Recording (erasure)

5) When a non-recorded section between tunes is engaged at present and the end position of the preceding tune is prior to the leader tape section...
   The pause CD code is issued, and the subsequent reverse operation is performed.

- When the tape end is reached again after erasure at previous item 1), 2), 3) or 4), or when previous step 5) is at work, a following operation is performed.

1) When reverse recording or oneway mode is engaged, or when the reverse side of tape is disabled from recording...
   The CCRS mode is canceled.
2) Other than above 1)
   The reverse recording move is entered. After ARM is thus applied for 10 seconds, the play CD code is issued.

**(C) Edit mode**

Setting: Press the EDIT key of the CD player, enter the tape length, then make edition, after which press the CCRS key of the deck.

Operation:
- The level setting is the same as in "(A) Fade out mode".
- The operation during play is the same as in "(B) Erase mode". However, the CD player, upon the termination of all tunes on the A side, issues the A side end code, and enters the pause mode at the head tune on the B side.

# CIRCUIT DESCRIPTION

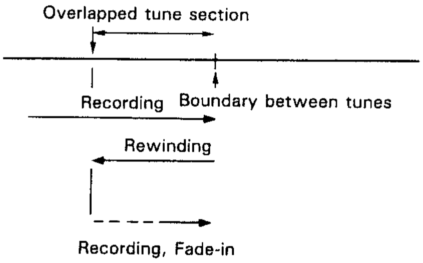
- The operation at the tape end of the deck is the same as in "(B) Erase mode". However, when the tape length is suited, item 5) of "(B) Erase mode" is engaged.
  When the status other than at the same item 5) is entered due to faulty input, etc., that is when the tape end or tape end back code is received, the CD player cancels the edit mode, after which it performs the operation occurring at "(B) Erase mode".

(D) Cross fade mode

Setting: The setting of the CD player is the same as in previous article (A)-(C). Then, press the CROSS FADE key of the deck.

Operation:
- The level setting is the same as in previous article (A)-(C).
- Operation during recording:

1) When the CD player is in the track mode...
   When the deck receives the CD start code, it issues the tape end code to rewind the tape to the location prior 10 seconds. Then, the play CD code is issued, and the recording pause mode is entered at electronic VR setting of $-\infty$. Upon reception of the CD start code, the recording mode is entered at a low bias.



2) When the CD player is in the PGM mode...
   When the deck receives the CD end code, it issues the pause CD code to rewind the tape to the location prior 10 seconds.
   The rest operation is the same as in previous item 1).
   When it receives the A side end code, it clears the in-tune flag, memorizes the counter value and continues the recording as it is.

- Operation when tape end is detected:

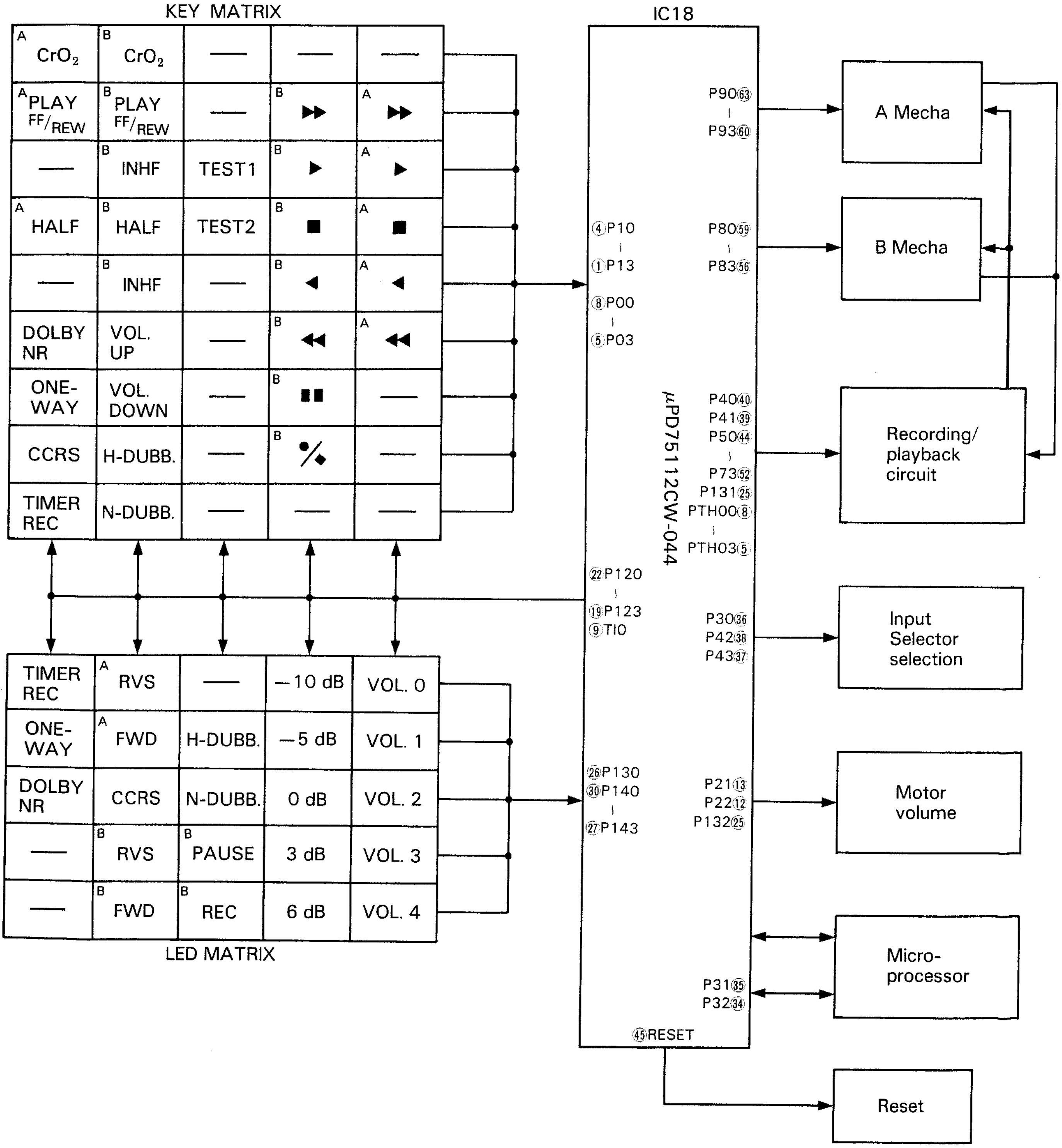
1) When reverse recording or oneway mode is engaged, or when the reverse side of the tape is disabled from recording during the forward recording mode...
   The stop mode is entered to issue the deck stop code. The CCRS mode is canceled.
2) Other than above item 1)
   a) Even in a tune or without tune, when the tune end reaches the leader tape section...
      the deck end code is issued.
   b) Without tune, when the tune end does not reach the leader tape section...
      the pause CD code is issued.
      The reverse recording mode is entered. After ARM is thus applied for 10 seconds, the play CD code is issued. The, the recording mute is OFF.

# RXD-24/24M

## CIRCUIT DESCRIPTION

### IC18: μPD75112CW-044 (X28-2110-21)
### Microprocessor (Master)

**KEY and LED MATRIX**



KEY MATRIX

| | | | | |
|---|---|---|---|---|
| A CrO$_2$ | B CrO$_2$ | — | — | — |
| A PLAY FF/REW | B PLAY FF/REW | — | B ▶▶ | A ▶▶ |
| — | B INHF | TEST1 | B ▶ | A ▶ |
| A HALF | B HALF | TEST2 | B ■ | A ■ |
| — | B INHF | — | B ◀ | A ◀ |
| DOLBY NR | VOL. UP | — | B ◀◀ | A ◀◀ |
| ONE-WAY | VOL. DOWN | — | B ❚❚ | — |
| CCRS | H-DUBB. | — | B ●/◆ | — |
| TIMER REC | N-DUBB. | — | — | — |

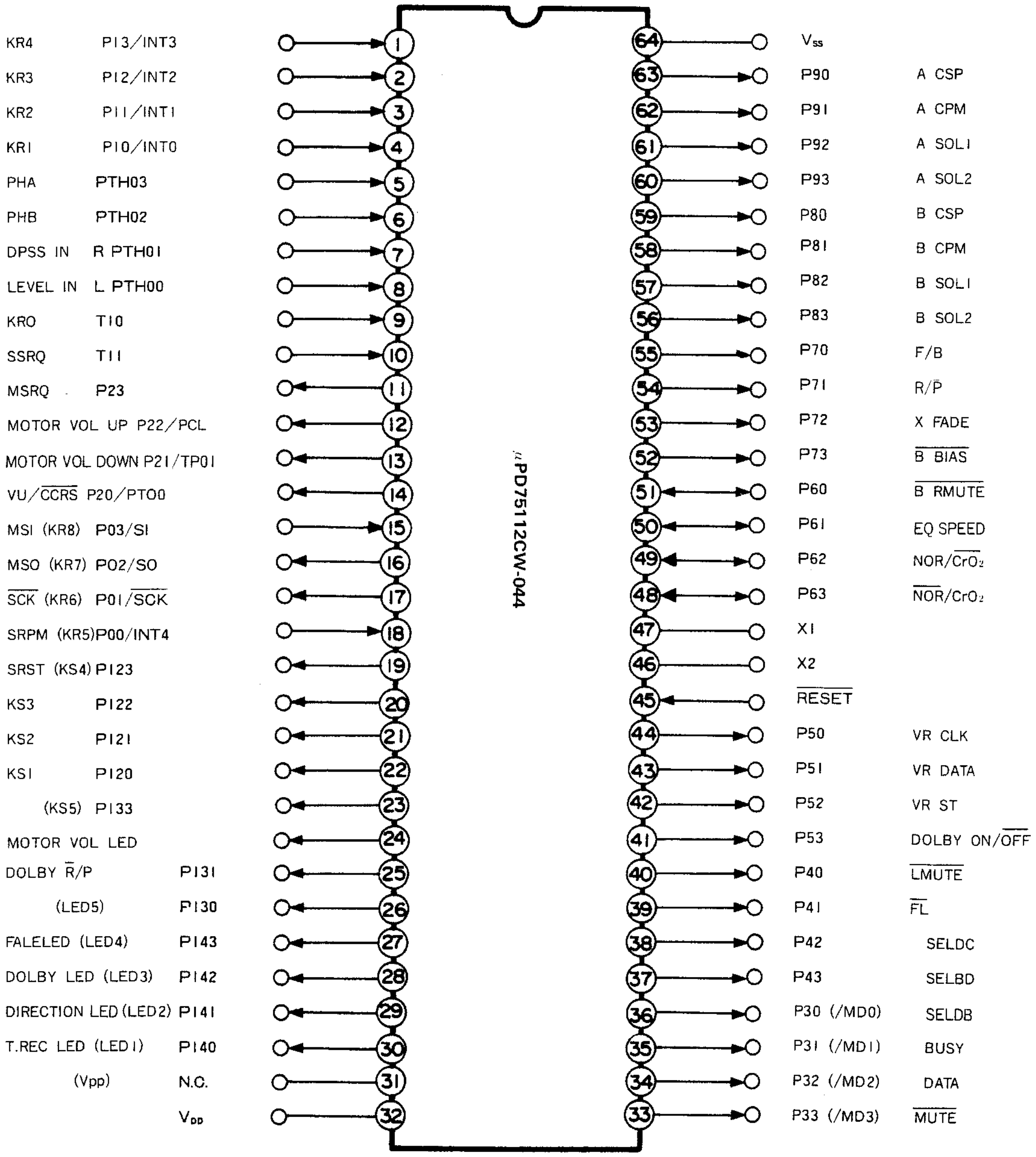
LED MATRIX

| | | | | |
|---|---|---|---|---|
| TIMER REC | A RVS | — | −10 dB | VOL. 0 |
| ONE-WAY | A FWD | H-DUBB. | −5 dB | VOL. 1 |
| DOLBY NR | CCRS | N-DUBB. | 0 dB | VOL. 2 |
| — | B RVS | B PAUSE | 3 dB | VOL. 3 |
| — | B FWD | B REC | 6 dB | VOL. 4 |

IC18
μPD75112CW-044
④P10 ~ ①P13
⑧P00 ~ ⑤P03
㉒P120 ~ ⑲P123
⑨TIO
㉖P130
㉚P140 ~ ㉗P143
P90(63) ~ P93(60)
P80(59) ~ P83(56)
P40㊵
P41㊴
P50㊹ ~ P73(52)
P131㉕
PTH00⑧ ~ PTH03⑤
P30㊱
P42㊳
P43㊲
P21⑬
P22⑫
P132㉕
P31㉟
P32㉞
㊺RESET
A Mecha
B Mecha
Recording/ playback circuit
Input Selector selection
Motor volume
Micro- processor
Reset

# CIRCUIT DESCRIPTION

## Pin connection



KR4 P13/INT3 1
KR3 P12/INT2 2
KR2 P11/INT1 3
KR1 P10/INT0 4
PHA PTH03 5
PHB PTH02 6
DPSS IN R PTH01 7
LEVEL IN L PTH00 8
KR0 TI0 9
SSRQ TI1 10
MSRQ P23 11
MOTOR VOL UP P22/PCL 12
MOTOR VOL DOWN P21/TP01 13
VU/CCRS P20/PTO0 14
MSI (KR8) P03/SI 15
MSO (KR7) P02/SO 16
SCK (KR6) P01/SCK 17
SRPM (KR5)P00/INT4 18
SRST (KS4) P123 19
KS3 P122 20
KS2 P121 21
KS1 P120 22
(KS5) P133 23
MOTOR VOL LED 24
DOLBY R/P P131 25
(LED5) P130 26
FALELED (LED4) P143 27
DOLBY LED (LED3) P142 28
DIRECTION LED (LED2) P141 29
T.REC LED (LED1) P140 30
(Vpp) N.C. 31
VDD 32
μPD75112CW-044
64 Vss
63 P90 A CSP
62 P91 A CPM
61 P92 A SOL1
60 P93 A SOL2
59 P80 B CSP
58 P81 B CPM
57 P82 B SOL1
56 P83 B SOL2
55 P70 F/B
54 P71 R/P
53 P72 X FADE
52 P73 B BIAS
51 P60 B RMUTE
50 P61 EQ SPEED
49 P62 NOR/CrO2
48 P63 NOR/CrO2
47 X1
46 X2
45 RESET
44 P50 VR CLK
43 P51 VR DATA
42 P52 VR ST
41 P53 DOLBY ON/OFF
40 P40 LMUTE
39 P41 FL
38 P42 SELDC
37 P43 SELBD
36 P30 (/MD0) SELDB
35 P31 (/MD1) BUSY
34 P32 (/MD2) DATA
33 P33 (/MD3) MUTE

# CIRCUIT DESCRIPTION

**Pin Functions:**

| Pin No. | Pin name | I/O | Symbol | Function |
|---|---|---|---|---|
| 1 | P13/INT3 | I | KR4 | Mechanism switch input<br>H : SW OFF<br>L : SW ON |
| 2 | P12/INT2 | I | KR3 | Mechanism switch input<br>H : SW OFF<br>L : SW ON |
| 3 | P11/INT1 | I | KR2 | Mechanism switch input<br>H : SW OFF<br>L : SW ON |
| 4 | P10/INT0 | I | KR1 | Mechanism switch input<br>H : SW OFF<br>L : SW ON |
| 5 | PTH03 | I | PHA | Mechanism A rotation detection sensor input |
| 6 | PTH02 | I | PHB | Mechanism B rotation detection sensor input |
| 7 | PTH01 | I | DPSS IN | Section-between-tunes signal input<br>H : With tune<br>L : Without tune |
| 8 | PTH00 | I | LEVEL IN | CCRS, meter signal input |
| 9 | TI0 | I | KR0 | Mechanism switch input<br>H : SW OFF<br>L : SW ON |
| 10 | TI1 | I | SSRQ | Slave microprocessor send request signal<br>H : With send request<br>L : Without send request |
| 11 | P23 | O | MSRQ | Master microprocessor send request signal<br>H : With send request<br>L : Without send request |
| 12 | P22/PCL | O | M. VOL. UP | Motor volume UP signal |
| 13 | P21/PTO1 | O | M. VOL. DOWN | Motor volume Down signal |
| 14 | P20/PTO0 | O | VU/$\overline{\text{CCRS}}$ | Level detection amplifier sensitivity output<br>H : Normally<br>L : CCRS |
| 15 | P03/SI | I | MSI (KR8) | Master-slave communication serial data input (key return input L: SW ON) |
| 16 | P02/SO | O | MSO (KR7) | Master-slave communication serial data output (key return input L: SW ON) |
| 17 | P01/$\overline{\text{SCK}}$ | O | $\overline{\text{SCK}}$ (KR6) | Master-slave communication serial data shift clock output (key return input L: SW ON) |
| 18 | P00/INT4 | I | SRRM (KR5) | Slave microprocessor reception acknowledge signal input<br>H : Reception OK<br>L : Reception NG |
| 19 | P123 | O | SRST (KR4) | Slave microprocessor reset output (key scan output)<br>H : Reset<br>L : Normal |
| 20 | P122 | O | KS3 | Mechanism switch scan output<br>H : OFF<br>L : Scan |
| 21 | P121 | O | KS2 | Mechanism switch scan output<br>H : OFF<br>L : Scan |
| 22 | P120 | O | KS1 | Mechanism switch scan output<br>H : OFF<br>L : Scan |
| 23 | P133 | O | (KS5) | No use |
| 24 | P132 | O | M. VOL. LED | LED control (Motor volume)<br>H : ON<br>L : OFF |
| 25 | P131 | O | D $\overline{\text{R}}$/P | Dolby $\overline{\text{R}}$/P selection<br>H : PLAY<br>L : REC |
| 26 | P130 | O | (LED5) | No use |

## CIRCUIT DESCRIPTION

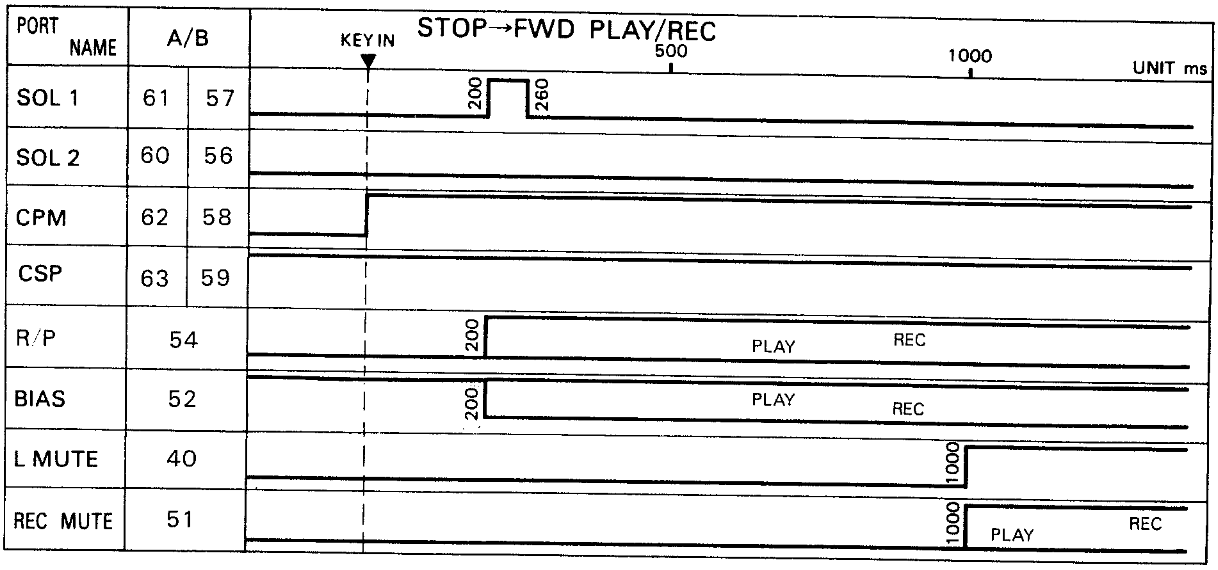
| Pin No. | Pin name | I/O | Symbol | Function | |
|---|---|---|---|---|---|
| 27 | P143 | O | (LED4) | No use | |
| 28 | P142 | O | DOLBY (LED3) | LED control (DOLBY NR) | H : ON<br>L : OFF |
| 29 | P141 | O | DIRECTION (LED2) | LED control (DIRECTION) | H : ON<br>L : OFF |
| 30 | P140 | O | T. REC (LED1) | LED control (TIMER REC) | H : ON<br>L : OFF |
| 31 | N.C. | — | — | No use | |
| 32 | $V_{DD}$ | — | $V_{DD}$ | Connected to +5 V. | H : OFF<br>L : ON |
| 33 | P33 | O | $\overline{\text{MUTE}}$ | Deck mute control | |
| 34 | P32 | I/O | DATA | System control Signal I/O (DATA) | |
| 35 | P31 | I/O | BYSY | System control signal I/O (BUSY) | |
| 36 | P30 | O | SELA | Selector IC control (A) | |
| 37 | P43 | O | SELB | Selector IC control (B) | |
| 38 | P42 | O | SELC | Selector IC control (C) | |
| 39 | P41 | O | $\overline{\text{FL}}$ | FL segment ON/OFF control | |
| 40 | P40 | O | $\overline{\text{LMUTE}}$ | Line mute control | H : OFF<br>L : ON |
| 41 | P53 | O | DOLBY ON/OFF | DOLBY ON/OFF control | H : ON<br>L : OFF |
| 42 | P52 | O | VR ST | Electronic volume strobe signal output | |
| 43 | P51 | O | VR DATA | Electronic volume serial data output | |
| 44 | P50 | O | VRCLK | Electronic volume serial clock | |
| 45 | $\overline{\text{RESET}}$ | I | $\overline{\text{RESET}}$ | Reset input | H : Normal<br>L : Reset |
| 46 | X2 | O | — | Ceramic OSC connection pin | f=4.19 MHz |
| 47 | X1 | I | — | Ceramic OSC connection pin | f=4.19 MHz |
| 48 | P63 | O | $\overline{\text{NOR}}/\text{CrO}_2$ | NOR/$\text{CrO}_2$ selection | L : NORMAL<br>H : $\text{CrO}_2$ |
| 49 | P62 | O | $\text{NOR}/\overline{\text{CrO}_2}$ | NOR/$\text{CrO}_2$ selection | H : NORMAL<br>L : $\text{CrO}_2$ |
| 50 | P61 | O | EQ SPEED | Deck B EQ control | H : High speed<br>L : Normal |
| 51 | P60 | O | $\overline{\text{BR MUTE}}$ | Deck B recording mute control | H : OFF<br>L : ON |
| 52 | P73 | O | $\overline{\text{B BIAS}}$ | Deck B blas ON/OFF | H : OFF<br>L : ON |
| 53 | P72 | O | X FADE | Bias fade in control | H : ON<br>L : OFF |

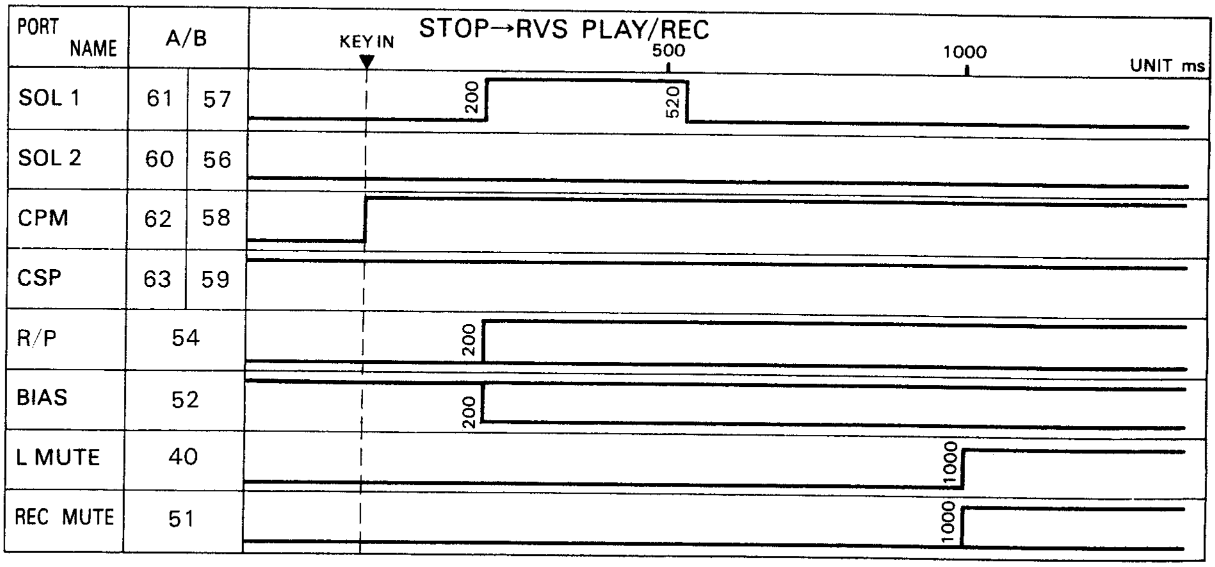
## CIRCUIT DESCRIPTION

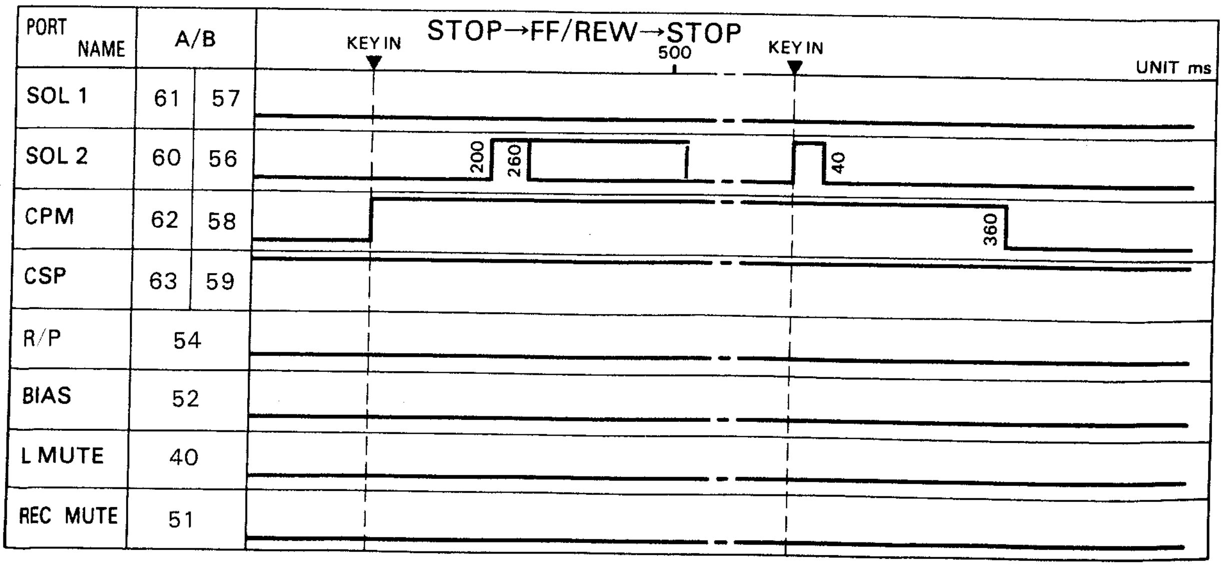
| Pin No. | Pin name | I/O | Symbol | Function | |
|---|---|---|---|---|---|
| 54 | P71 | O | R/$\overline{P}$ | Deck B R/P selection | H : REC<br>L : PLAY |
| 55 | P70 | O | $\overline{A}$/B | Playback EQ A/B selection | H : B<br>L : A |
| 56 | P83 | O | SOL2B | Deck B solenoid 2 control | H : Normal speed<br>L : High speed |
| 57 | P82 | O | SOL1B | Deck B solenoid 1 control | H : Play or recording<br>L : Others |
| 58 | P81 | O | CPMB | Deck B capstan motor control | H : ON<br>L : OFF |
| 59 | P80 | O | CSPB | Deck B capstan motor speed control | H : Normal<br>L : High speed |
| 60 | P93 | O | SOL2A | Deck A solenoid 2 control | H : ON<br>L : OFF |
| 61 | P92 | O | SOL1A | Deck A solenoid 1 control | H : ON<br>L : OFF |
| 62 | P91 | O | CPMA | Deck A capstan motor control | H : ON<br>L : OFF |
| 63 | P90 | O | CSPA | Deck A capstan motor speed control | H : Normal speed<br>L : High speed |
| 64 | $V_{SS}$ | — | $V_{SS}$ | Connected to GND. | |

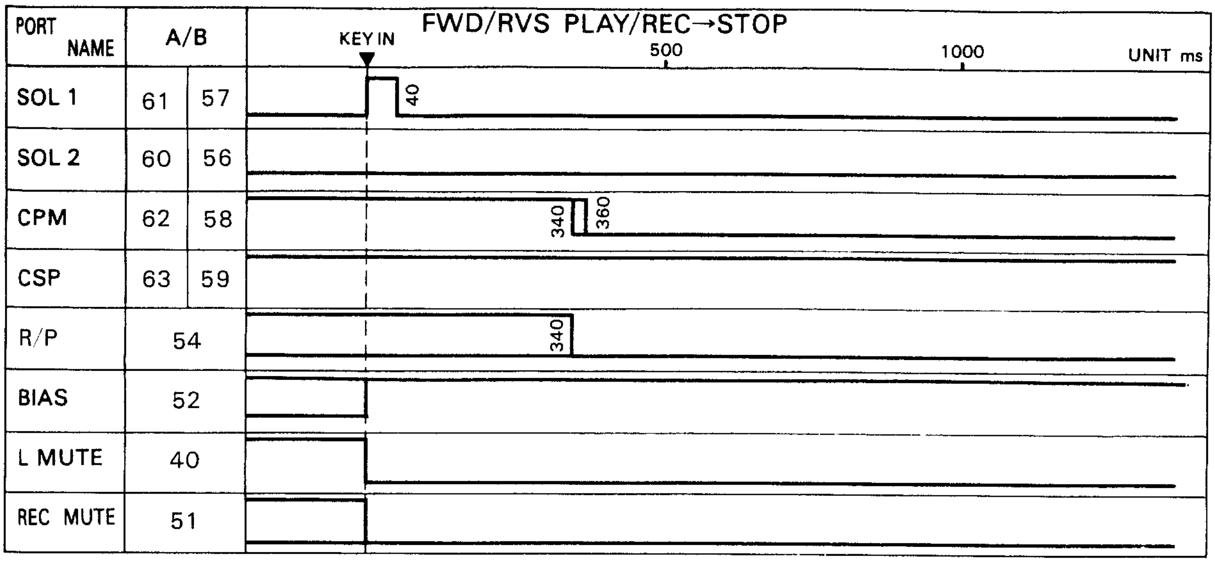
# CIRCUIT DESCRIPTION

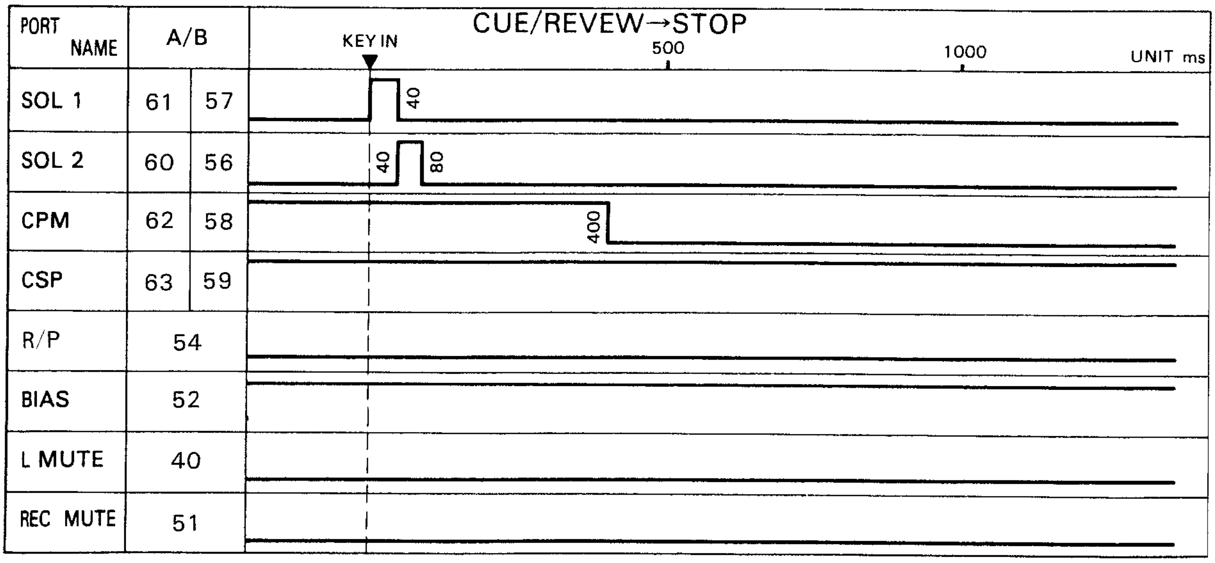
## TIMING CHART

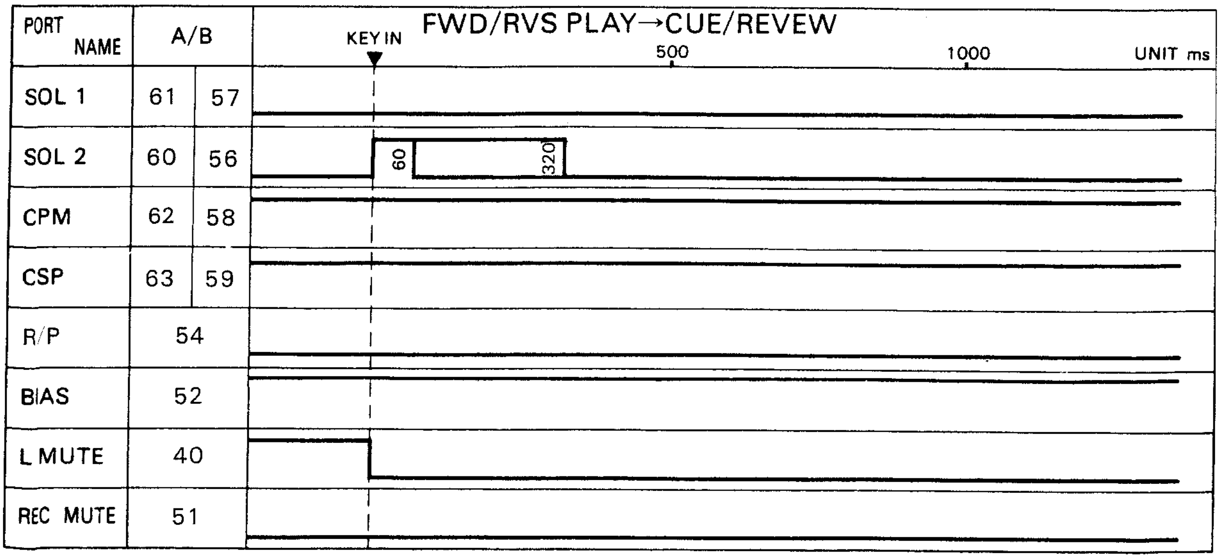

PORT NAME
A/B
KEY IN
STOP→FWD PLAY/REC
500
1000
UNIT ms
SOL 1 61 57
SOL 2 60 56
CPM 62 58
CSP 63 59
R/P 54
BIAS 52
L MUTE 40
REC MUTE 51
200
260
PLAY
REC
1000


PORT NAME
A/B
KEY IN
STOP→RVS PLAY/REC
500
1000
UNIT ms
SOL 1 61 57
SOL 2 60 56
CPM 62 58
CSP 63 59
R/P 54
BIAS 52
L MUTE 40
REC MUTE 51
200
520
1000

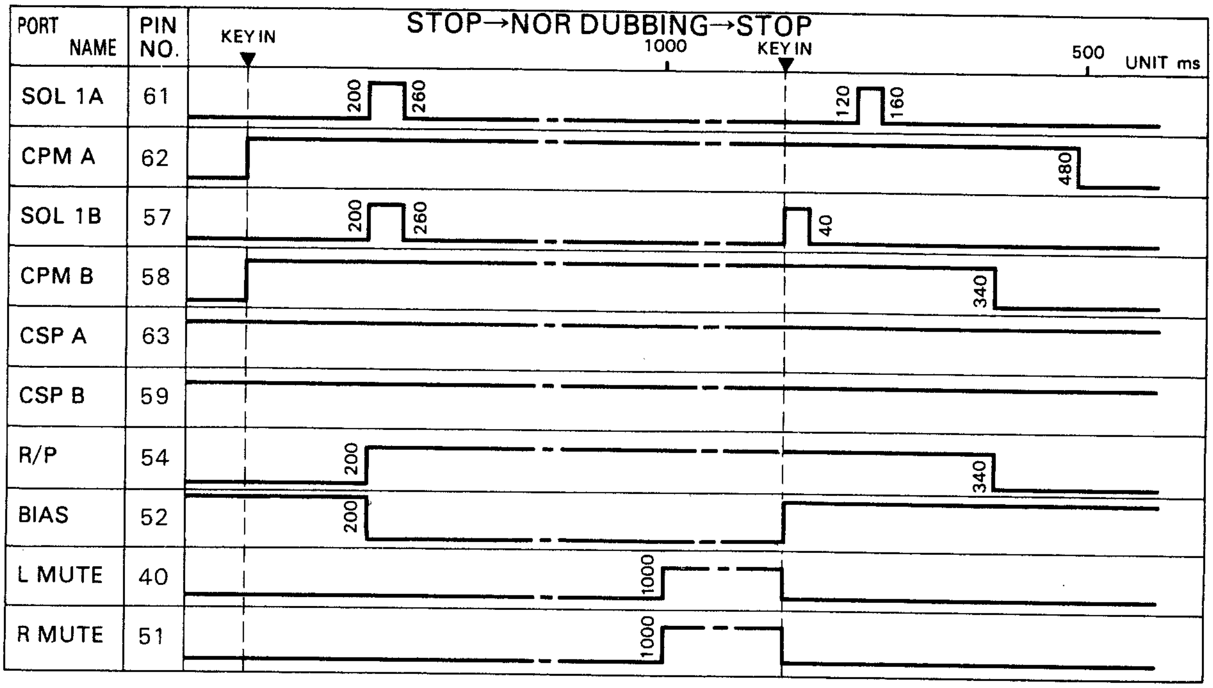

PORT NAME
A/B
KEY IN
STOP→FF/REW→STOP
500
KEY IN
UNIT ms
SOL 1 61 57
SOL 2 60 56
CPM 62 58
CSP 63 59
R/P 54
BIAS 52
L MUTE 40
REC MUTE 51
200
260
40
360

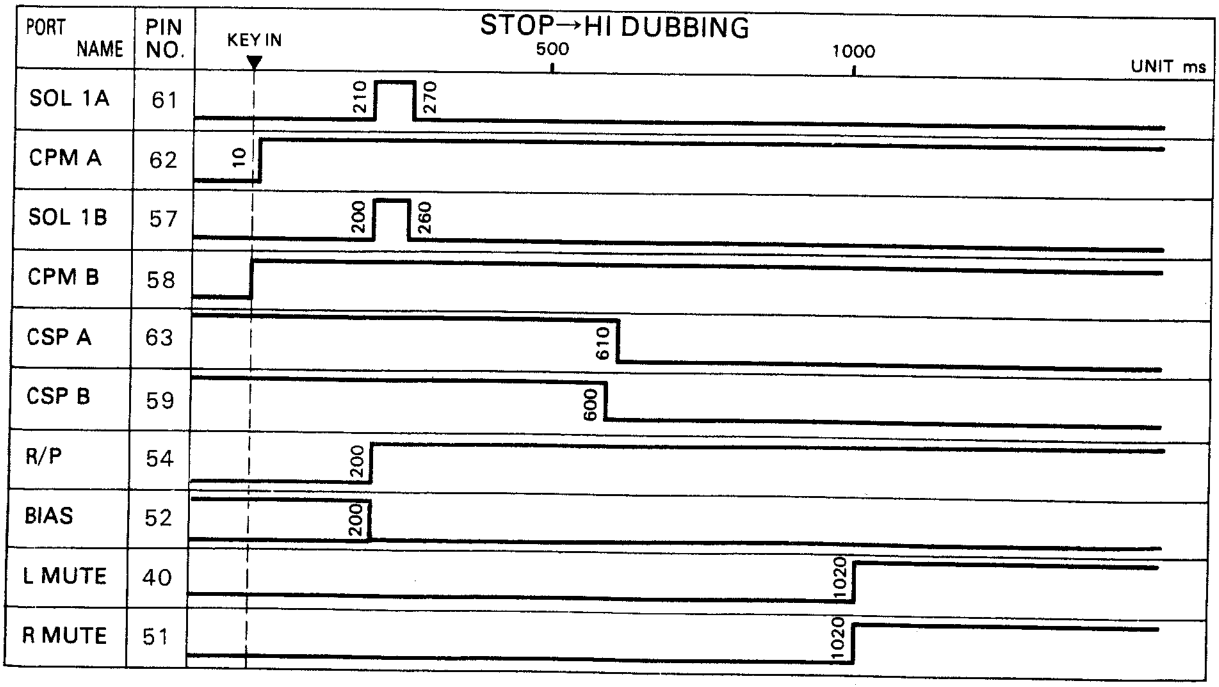

FWD/RVS PLAY/REC→STOP
PORT NAME
A/B
KEY IN
500
1000
UNIT ms
SOL 1 61 57
40
SOL 2 60 56
CPM 62 58
340
360
CSP 63 59
R/P 54
340
BIAS 52
L MUTE 40
REC MUTE 51


CUE/REVEW→STOP
PORT NAME
A/B
KEY IN
500
1000
UNIT ms
SOL 1 61 57
40
SOL 2 60 56
40
80
CPM 62 58
400
CSP 63 59
R/P 54
BIAS 52
L MUTE 40
REC MUTE 51

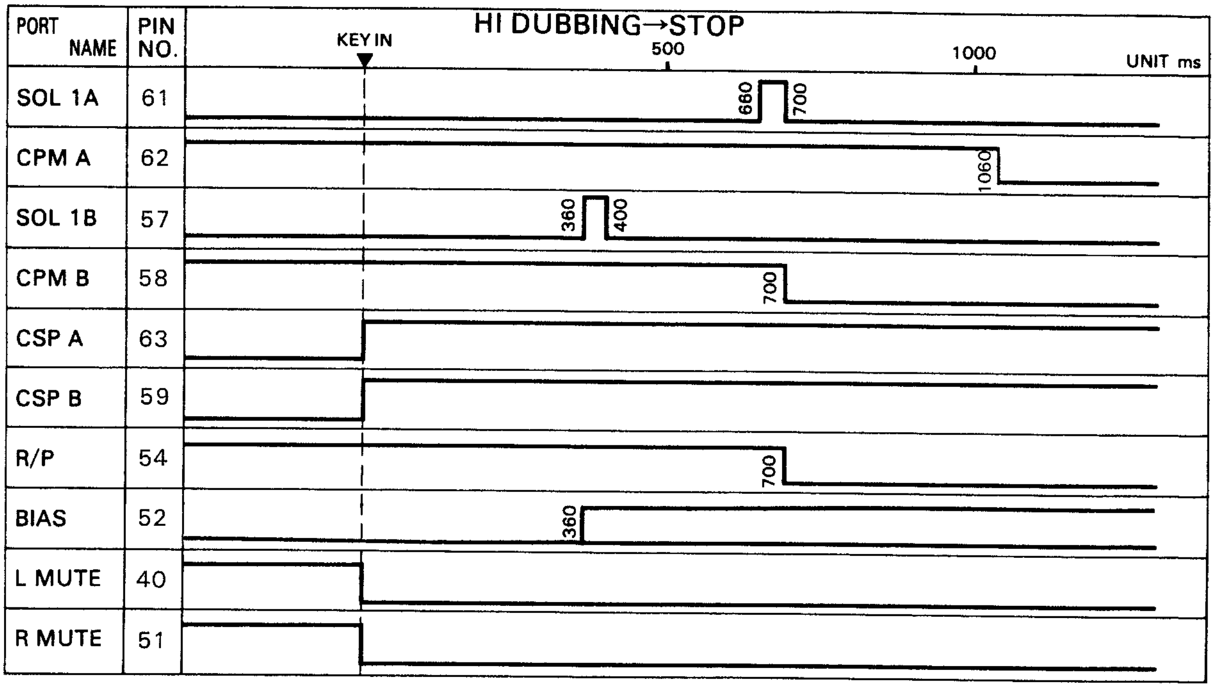

FWD/RVS PLAY→CUE/REVEW
PORT NAME
A/B
KEY IN
500
1000
UNIT ms
SOL 1 61 57
SOL 2 60 56
60
320
CPM 62 58
CSP 63 59
R/P 54
BIAS 52
L MUTE 40
REC MUTE 51

# CIRCUIT DESCRIPTION





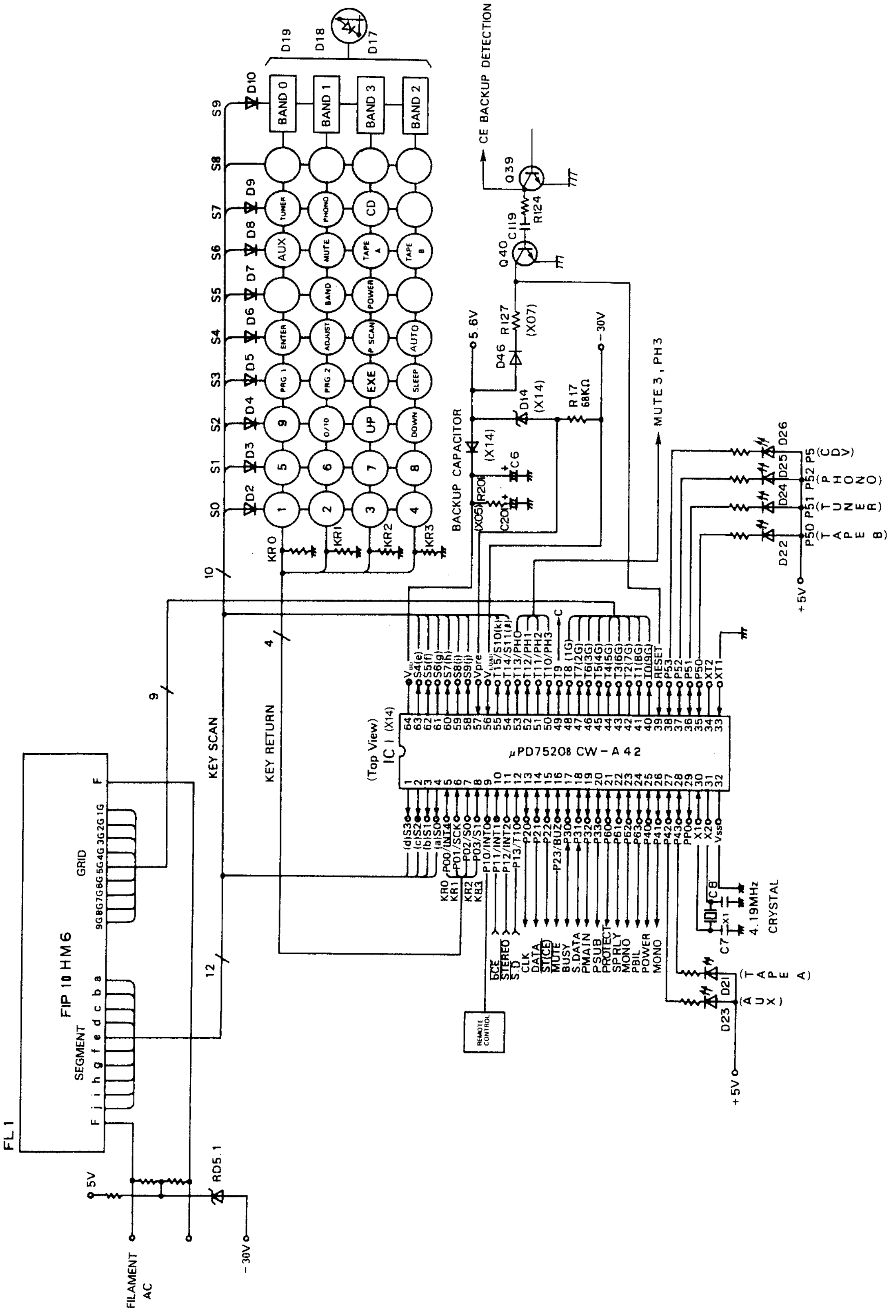
# CIRCUIT DESCRIPTION


PORT NAME
PIN NO.
KEY IN
HI DUBBING→STOP
500
1000
UNIT ms
SOL 1A
61
660
700
CPM A
62
1060
SOL 1B
57
360
400
CPM B
58
700
CSP A
63
CSP B
59
R/P
54
700
BIAS
52
360
L MUTE
40
R MUTE
51

# CIRCUIT DESCRIPTION

## RECEIVER

**IC1: μPD75208CW-A42 (X14-2760-21)**
**Receiver Microprocessor**


FL 1
FIP 10 HM6
SEGMENT
F j i h g f e d c b a
GRID
9G 8G 7G 6G 5G 4G 3G 2G 1G F
KEY SCAN
KEY RETURN
9
12
10
4
FILAMENT AC
5V
-30V
RD5.1
(Top View)
IC 1 (X14)
μPD75208 CW - A 42
BAND 0
BAND 1
BAND 3
BAND 2
D10
D17
D18
D19
S0
S1
S2
S3
S4
S5
S6
S7
S8
S9
D2
D3
D4
D5
D6
D7
D8
D9
KR 0
KR1
KR2
KR3
TUNER
PHONO
CD
AUX
MUTE
TAPE A
TAPE B
BAND
POWER
ENTER
ADJUST
P SCAN
AUTO
PRG 1
PRG 2
EXE
SLEEP
0/10
UP
DOWN
CE BACKUP DETECTION
Q39
R124
C119
Q40
R127
(X07)
D46
5.6V
-30V
D14
(X14)
R17
68KΩ
BACKUP CAPACITOR
(X14)
C6
R20
C20
(X05)
MUTE 3, PH3
D26
D25
D24
D22
P50
P51
P52
P5
(TAPE B)
(TUNER)
(PHONO)
(CDV)
+5V
RESET
P53
P52
P51
P50
XT2
XT1
Vdd
S4(e)
S5(f)
S6(g)
S7(h)
S8(i)
S9(j)
Vpre
Vload
T15/S10(k)
T14/S11(ℓ)
T13/PH0
T12/PH1
T11/PH2
T10/PH3
T9
T8 (1G)
T7(2G)
T6(3G)
T5(4G)
T4(5G)
T3(6G)
T2(7G)
T1(8G)
T0(9G)
(d)S3
(c)S2
(b)S1
(a)S0
P00/INT4
P01/SCK
P02/SO
P03/SI
P10/INT0
P11/INT1
P12/INT2
P13/TI0
P20
P21
P22
P23/BUZ
P30
P31
P32
P33
P60
P61
P62
P63
P40
P41
P42
P43
PP0
X1
X2
Vss
CE
STEREO
S.D
CLK
DATA
STICE
MUTE
BUSY
S.DATA
PMAIN
PSUB
PROTECT
SPRLY
MONO
PBIL
POWER
MONO
REMOTE CONTROL
C8
C7
X1
4.19MHz
CRYSTAL
D21
D23
(TAPE A)
(AUX)
+5V

# CIRCUIT DESCRIPTION

## RECEIVER (AMPLIFIER TUNER)

### IC1: µPD75208CW-296 (X14-2510-01) Receiver (amplifier tuner) microprocessor.

**1. Operation Specifications**

**1-1 Function Outline**

- Tuner system

  A timer, two-channel program timer, and 90-minute sleep timer are incorporated. This tuner also controls FM, and AM synthesizers.

- Amplifier system

  The amplifier selects a six-channel audio system (PHONO, TUNER, CD, AUX, TAPE, A, and B) as input.

**1-2 Tuner Control PLL IC (LM7001)**

① Autotuning (during AUTO ON)
When a frequency is scanned in approximately 128 ms and the station is tuned, the receive mode is entered to maintain the station.

② Manual tuning (during AUTO OFF)
A frequency is sent in step. When key is pressed for more than 500 ms after it is first entered, the frequency is scanned continuously in 128 ms until the key is released.

③ Preset memory read/write
Ten each FM and AM bands (20 bands total) can be memorize.

④ Preset scan
A frequency is received sequentially from low-to high-numbered preset channel for a fixed time (tuned: 5 seconds; not tuned: 1 second).

**Receiving Band and PLL IC (LM7001) Output**

| Band | Destina-tion Type | Set Switches B0 B1 B2 B3 | Receiving frequency range (f) | Channel space | PLL reference frequency | Intermediate frequency | PLL input terminal | PLL output port | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | B01 | B02 | B03 |
| FM | K | 1 0 X X | 87.5 MHz ~ 108.0 MHz | 100 kHz | 50 kHz | f+10.7 MHz | FMIN | H | H | L |
| | E | 1 1 X X | | 50 kHz | | | | | | |
| AM | E | 1 1 X X | 531 kHz ~ 1602 kHz | 9 kHz | 9 kHz | f+450 kHz | AMIN | H | L | H |
| | K1 | 1 0 0 0 | 530 kHz ~ 1610 kHz | 10 kHz | 10 kHz | f+450 kHz | AMIN | H | L | H |
| | K2 | 1 0 1 0 | 530 kHz ~ 1700 kHz | | | | | | | |
| LW | E | 1 1 0 1 | 153 kHz ~ 281 kHz | 1 kHz | 1 kHz | f+450 Hz | AMIN | L | H | H |

# CIRCUIT DESCRIPTION

**Pin Function**

| Pin No. | Pin Name | I/O | Name | Description |
|---|---|---|---|---|
| 1 | S3 | O | d | d-segment drive/key scan |
| 2 | S2 | O | c | c-segment drive/key scan |
| 3 | S1 | O | b | b-segment drive/key scan |
| 4 | S0 | O | a | a-segment drive/key scan |
| 5 | P00 | I | KR0 | Key-matrix, key return input |
| 6 | P01 | I | KR1 | Key-matrix, key return input |
| 7 | P02 | I | KR2 | Key-matrix, key return input |
| 8 | P03 | I | KR3 | Key-matrix, key return input |
| 9 | P10 | I | $\overline{\mathrm{REMIN}}$ | Remote control input Active Low |
| 10 | P11 | I | $\overline{\mathrm{CE}}$ | Backup detection Active Low |
| 11 | P12 | I | $\overline{\mathrm{STO}}$ | Stereo broadcast detection Active Low |
| 12 | P13 | I | $\overline{\mathrm{SD}}$ | Station detection Active Low |
| 13 | P20 | O | CLK | Control PLL IC (LM7001) clock |
| 14 | P21 | O | DATA | Control PLL IC (LM7001) data |
| 15 | P22 | O | ST | Control PLL IC (LM7001) strob |
| 16 | P23 | O | $\overline{\mathrm{MUTE}}$ | Mute signal out Active Low |
| 17 | P30 | I/O | BUSY | System control signal input/output (BUSY) |
| 18 | P31 | I/O | SDATA | System control signal input/output (DATA) |
| 19 | P32 | O | PMAIN | Multiplex broadcast (MAIN) selection |
| 20 | P33 | O | PSUB | Multiplex broadcast (SUB) selection |
| 21 | P60 | I | PROTECT | Protection signal input |
| 22 | P61 | O | SPRLY | Control output relay |
| 23 | P62 | O | | |
| 24 | P63 | I | $\overline{\mathrm{PBIL}}$ | Bilingual indication when received TV broadcast. |
| 25 | P40 | O | POWER | Power relay control H: Power ON |
| 26 | P41 | O | MONO | Monaural control H: Mono |
| 27 | P42 | O | LAUX | INPUT selector LED (AUX) |
| 28 | P43 | O | LTAPEA | INPUT selector LED (TAPE, A) |
| 29 | PPO | O | | No used OPEN |
| 30 | X1 | I | | System clock oscillation (crystal 4.194304 MHz) |
| 31 | X2 | O | | System clock oscillation (crystal 4.194304 MHz) |
| 32 | $V_{ss}$ | | | Power supply (GND) |
| 33 | XT1 | I | | No used GND |
| 34 | XT2 | O | | No used OPEN |
| 35 | P50 | O | L TAPEB | INPUT SELECTOR LED (TAPE B) |

## CIRCUIT DESCRIPTION

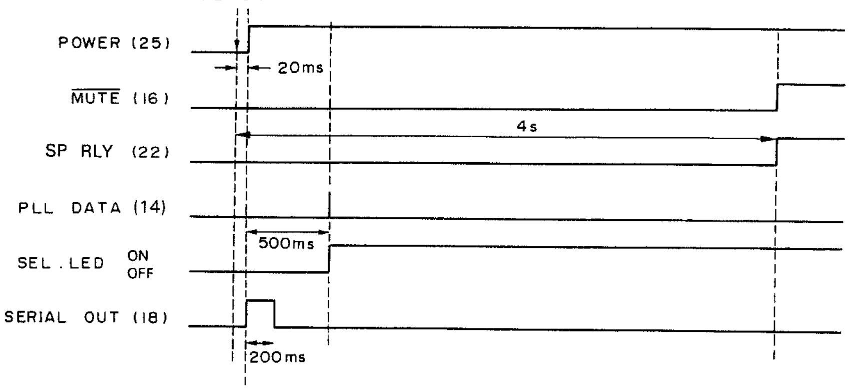
| Pin No. | Pin Name | I/O | Name | Description |
|---|---|---|---|---|
| 36 | P51 | O | L TUNER | INPUT selector LED (TUNER) |
| 37 | P52 | O | L PHONO | INPUT selector LED (PHONO) |
| 38 | P53 | O | L CD | INPUT selector LED (CD) |
| 39 | $\overline{\text{RESET}}$ |  |  | Reset L: RESET |
| 40 | T0 | O | 9G | Grit control (9G) |
| 41 | T1 | O | 8G | Grit control (8G) |
| 42 | T2 | O | 7G | Grit control (7G) |
| 43 | T3 | O | 6G | Grit control (6G) |
| 44 | T4 | O | 5G | Grit control (5G) |
| 45 | T5 | O | 4G | Grit control (4G) |
| 46 | T6 | O | 3G | Grit control (3G) |
| 47 | T7 | O | 2G | Grit control (2G) |
| 48 | T8 | O | 1G | Grit control (1G) |
| 49 | T9 | O |  | No used |
| 50 | PH3 | O | MUTE3 | TUNER MODE: OPEN, OTHER MODE: High. |
| 51 | PH2 | O |  | No used |
| 52 | PH1 | O |  | No used |
| 53 | PH0 | O |  | No used |
| 54 | S11 | O | l | l-segment drive |
| 55 | S10 | O | k | k-segment drive/key scan |
| 56 | $V_{LOAD}$ |  |  | Pull-down for FL (−30 V) |
| 57 | $V_{PRE}$ |  |  | Predriver for FL |
| 58 | S9 | O | j | j-segment drive/key scan |
| 59 | S8 | O | i | i-segment drive/key scan |
| 60 | S7 | O | h | h-segment drive/key scan |
| 61 | S6 | O | g | g-segment drive/key scan |
| 62 | S5 | O | f | f-segment drive/key scan |
| 63 | S4 | O | e | e-segment drive/key scan |
| 64 | $V_{DD}$ |  |  | Power supply (+5 V) |

# CIRCUIT DESCRIPTION

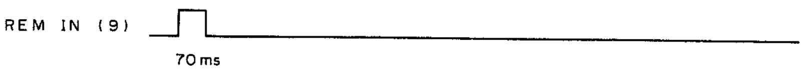
## TIMING CHART

(1) POWER ON

i) KEY POWER ON

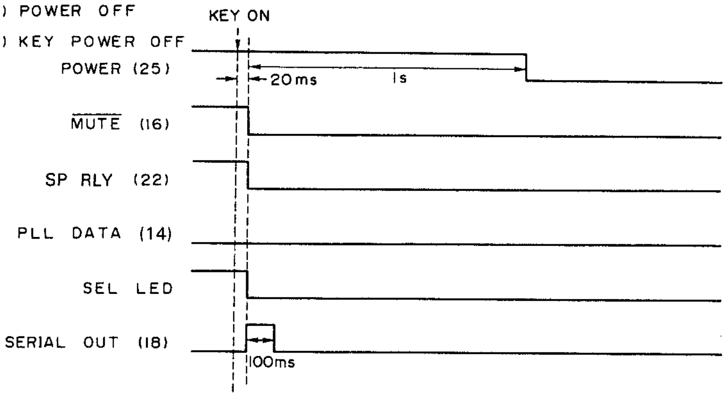

KEY ON
POWER (25)
20ms
MUTE (16)
4s
SP RLY (22)
PLL DATA (14)
500ms
SEL . LED
ON
OFF
SERIAL OUT (18)
200ms

ii) REMOCON POWER ON

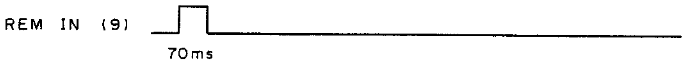

REM IN (9)
70ms

(2) POWER OFF

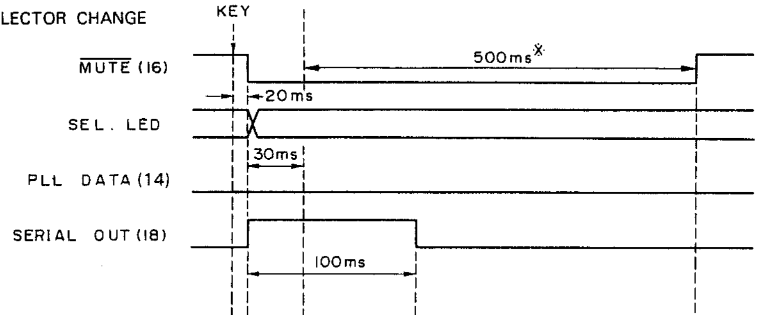
i) KEY POWER OFF


KEY ON
POWER (25)
20ms
1s
MUTE (16)
SP RLY (22)
PLL DATA (14)
SEL LED
SERIAL OUT (18)
100ms

ii) REMOCON POWER OFF

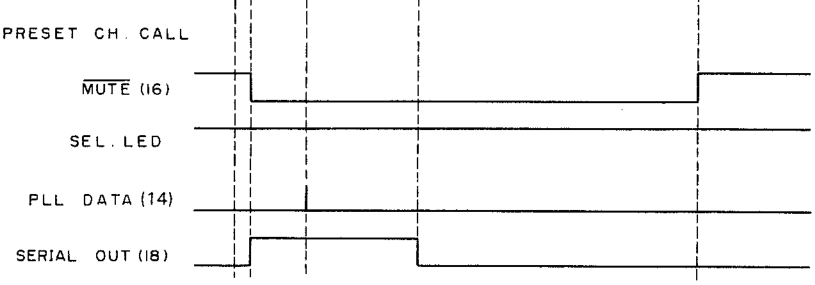

REM IN (9)
70ms

(3) SELECTOR CHANGE


KEY
MUTE (16)
500ms※
20ms
SEL. LED
30ms
PLL DATA (14)
SERIAL OUT (18)
100ms

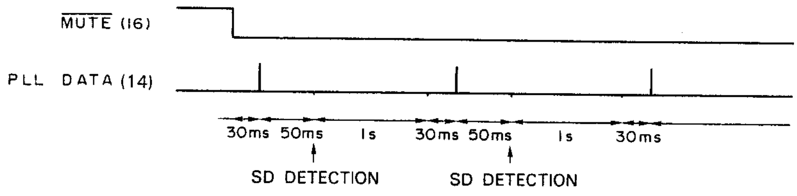
※When mode is selected "TUNER", value is 1 s.

(4) PRESET CH. CALL


MUTE (16)
SEL. LED
PLL DATA (14)
SERIAL OUT (18)

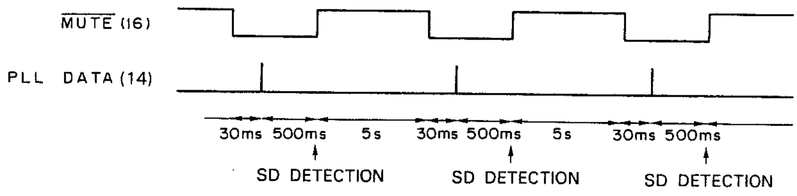
(5) PRESET CH. SCAN

i) No station


MUTE (16)
PLL DATA (14)
30ms 50ms 1s 30ms 50ms 1s 30ms
SD DETECTION
SD DETECTION

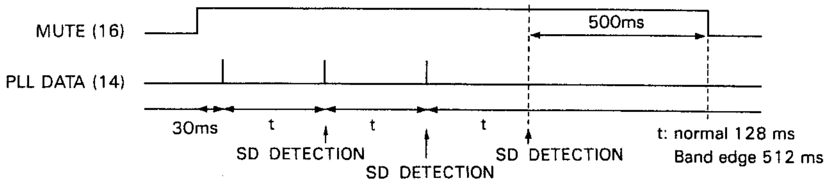
*Don't detect SD signal in non-TUNER mode.

ii) Station

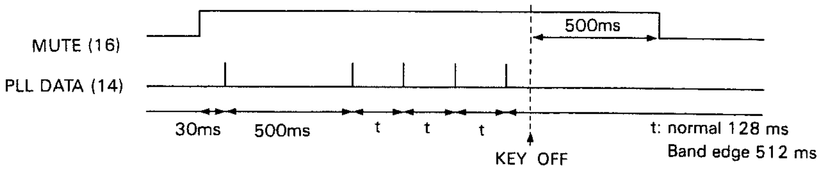

MUTE (16)
PLL DATA (14)
30ms 500ms 5s 30ms 500ms 5s 30ms 500ms
SD DETECTION
SD DETECTION
SD DETECTION

# CIRCUIT DESCRIPTION

(6) AUTO TUNING


MUTE (16)
PLL DATA (14)
500ms
30ms
t
t
t
SD DETECTION
SD DETECTION
SD DETECTION
t: normal 128 ms
Band edge 512 ms

(7) MANUAL TUNING


MUTE (16)
PLL DATA (14)
500ms
30ms
500ms
t
t
t
KEY OFF
t: normal 128 ms
Band edge 512 ms

## Serial Communication Troubleshooting

### 1. When other devices cannot be activated during receiver operation

Example: When the POWER switch of the cassette receiver is set to ON, the amplifier is switched ON, but the tuner is not switched ON (with the timer displayed).

**Description** Even if the receiver operates, other devices are not activated as follows:

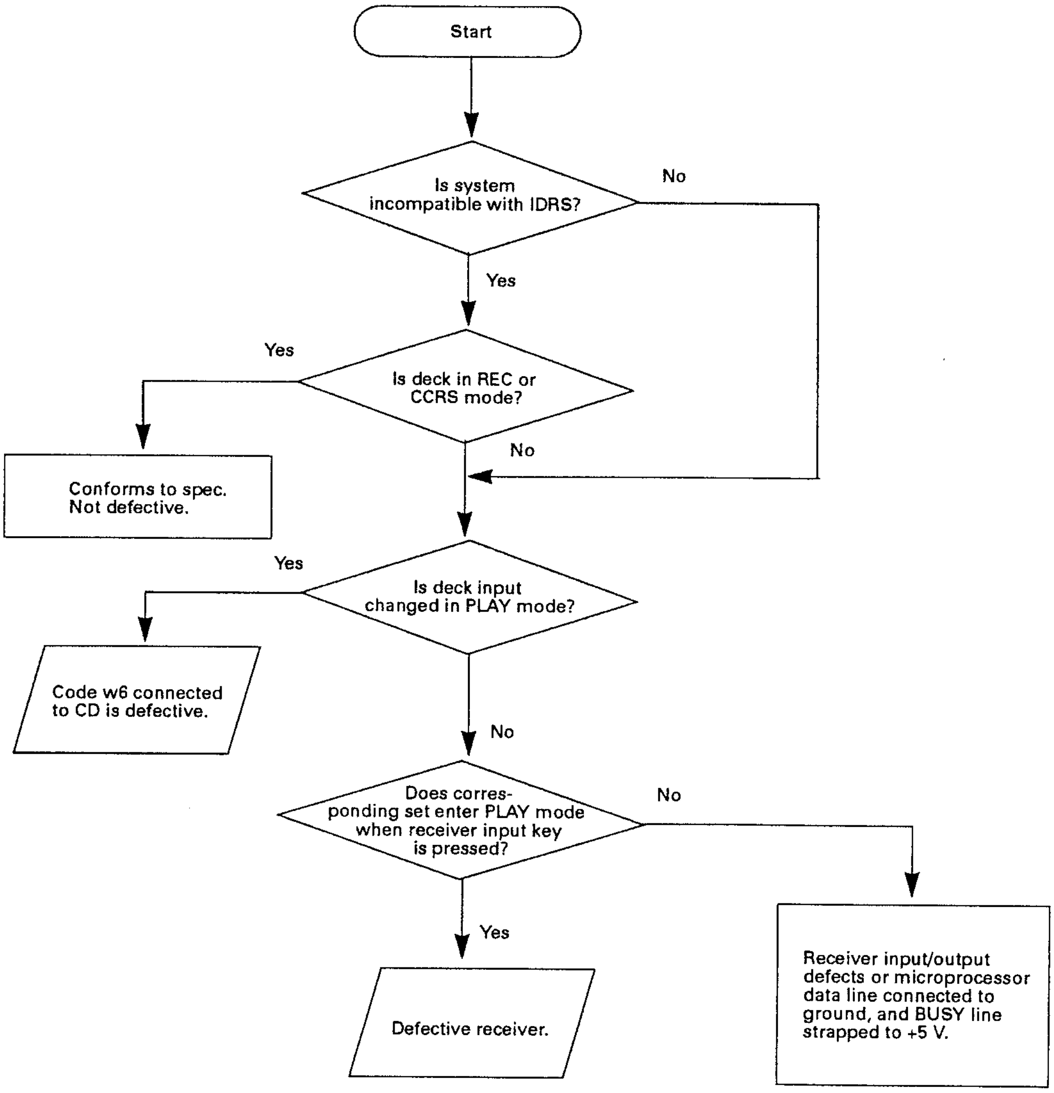
(1) Only the specified device cannot be activated, and other devices are easy to operate.
(2) The receiver can operate, but other devices are not activated. When other devices are set in the PLAY mode, the receiver input is activated with them.
(3) No device can be activated during receiver operation.

Possible cause

- For step (1), the specified device or the serial code connected to the device is defective.
- For step (2), the receiver serial output related block is defective.
- For step (3), the receiver serial input or output is defective, or no data voltage appears because the data line of same device is connected to ground or some device cannot output because a BUSY line is connected or the +B (5 V) terminal.

## CIRCUIT DESCRIPTION

**2. The receiver input selector is inoperative even if devices other than the receiver are set in the PLAY mode.**
Example When the CD player is set in the PLAY mode, the receiver input selector cannot be set to CD.


Start
Is system incompatible with IDRS?
No
Yes
Is deck in REC or CCRS mode?
Yes
No
Conforms to spec. Not defective.
Is deck input changed in PLAY mode?
Yes
Code w6 connected to CD is defective.
No
Does corresponding set enter PLAY mode when receiver input key is pressed?
No
Yes
Defective receiver.
Receiver input/output defects or microprocessor data line connected to ground, and BUSY line strapped to +5 V.

**Description**
The trouble above is also classified into the following:
(1) Only the specified device cannot be activated, and other devices are easy to operate.
(2) If other device's selector or play key is pressed, Amplifier's selector doesn't change (no output).
(3) No device can be activated.

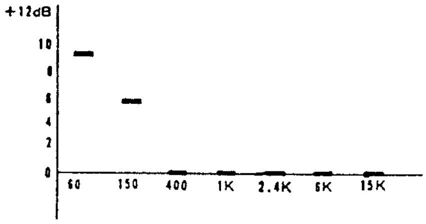
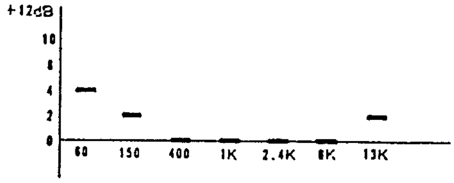
Possible cause
For step (1), the specified device is defective.
For step (2), the receiver serial input is defective.
For step (3), same as in (3) of the preceding item.

# CIRCUIT DESCRIPTION

## GRAPHIC EQUALIZER

### Graphic Equalizer Circuit Operation

### Graphic Equalizer Key Operation and Functions

| Name | Description |
|---|---|
| EQ ON/OFF<br>(Attached to amplifier.) | • Sets pin 23 of IC2 (X14) ON or OFF for LED indicator display. LOW ...Goes on<br>• When the graphic equalizer is ON, the current graphic equalizer setting data is sent to the electronic volume control.<br>When it is OFF, the data setting value becomes flat. |
| BASS BOOST | • Sets pin 17 of IC2 (X14) ON or OFF for LED indicator display. LOW ... Goes on.<br>• When the BASS BOOST key is ON, bass boost data is added to the current graphic equalizer setting data. The resultant data is sent to the electronic volume control.<br>When it is OFF, the current graphic equalizer setting data is sent to the electronic volume control.<br>Bass boost curve  <br>The bass boost curve has an effect only a music signal.<br>The display does not change. (Graphic equalizer display) |
| SURROUND<br>(RXD-24M only) | • Sets pin 16 of IC2 (X14) to ON or OFF for LED indicator display.<br>• Surround circuit works or not by the signal of IC2 (*pin 16). |
| LOUDNESS<br>(RXD-24 only) | • Set pin 16 of IC2 (X14) ON or OFF for LED indicator display.<br>• When the LOUDNESS key is ON, loudness data is added to the current graphic equalizer setting data. The resultant data is sent to the electronic volume control.<br>When it is OFF, the current graphic equalizer setting data is sent to the electronic volume control.<br>Loudness curve  <br>The loudness curve above has an effect only a music signal. The display does not change. (Graphic equalizer display)<br>**Note:** When the BASS BOOST key is ON with the LOUDNESS key ON, it is forcibly set OFF. The LOUDNESS and BASS BOOST keys cannot be set ON at the same time. When the LOUDNESS key is set ON with the BASS BOOST key set ON, it is forcibly set OFF. |
| MEMORY | • The graphic equalizer settings at frequency points are set to UP/DOWN (±12 dB (MAX)).<br>• The write enable mode is maintained for 5 seconds. At that time, the memory enable display appears. (The memory channel LED indicator blinks. If no data is written, the former display is returned after 5 seconds.) |
| FLAT | • The current graphic equalizer setting value is made flat. |
| UP, DOWN<br>(f1, f2, f3, f4, f5, f6, f7) | • The graphic equalizer settings at frequency points are set to UP/DOWN (±12 dB (MAX)).<br>• WHEN THE UP and DOWN keys are held down using an enable key, the level changes up or down in 150 ms and stops at a maximum or minimum level.<br>• When these key are on during spectrum analyzer display, the graphic equalizer display appears. The display is maintained for 5 seconds after these keys are set off. The former display is then returned.<br>• When the UP and DOWN keys are pressed simultaneously at the same frequency point, processing is interrupted. |
| R1~R5 | • Reference memory read keys (five-channel fixed memory) |
| M1~M5 | • MANUAL memory read/write keys (five channel user memory)<br>• When these keys are held down for more than 5 seconds during read, the initial setting value (curve) is read. |

# CIRCUIT DESCRIPTION

- **LOUDNESS and BASS BOOST effects**

This system is usually in the graphic equalizer REC mode. If the LOUDNESS or BASS BOOST key is set ON when a serial code (XXX REC) is received from the deck, Loudness or Bass boost effect is forcibly set OFF with the LED indicator set ON or OFF. When a PLAY or STOP serial code is received from the deck, the electronic volume control of the graphic equalizer is returned to the former position.

- **MANUAL MEMORY key (M1 through M5) operation**

(1) The curve described in the figure below is included during initial setting.

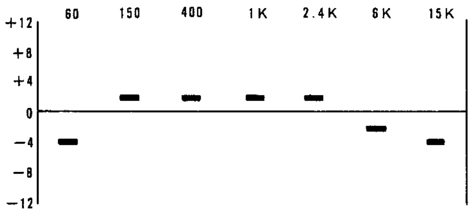
(2) Data writing
When the MEMORY key is pressed after the graphic equalizer curve is modified according to the user's requirements, the memory write mode is maintained for approximately 5 seconds. When the MANUAL MEMORY keys (M1 through M5) are pressed at that time, data is written in the pressed channel memory.

(3) Preset reading
When the MANUAL MEMORY keys (M1 through M5) are pressed, the internal memory curve can be read.

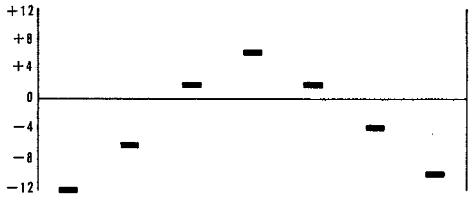
(4) Returning MANUAL MEMORY keys (M1 through M5) to initial setting
When the MANUAL MEMORY keys (M1 through M5) you wish to return are held down for approximately 5 seconds, the initial setting curve (preset from the beginning) can be written in the pressed channel memory.

**MANUAL memory list**

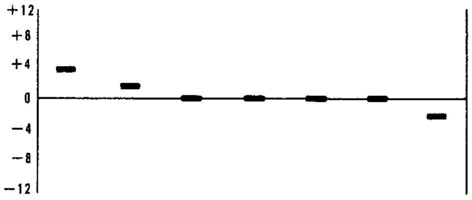
(Provisional)
M1: Analog records



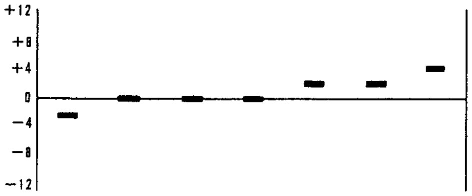
M2: 1950s jazz
(Current R2 channel)



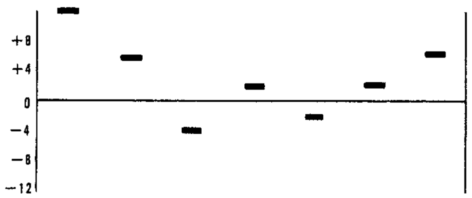
M3: BGM (Long-time Listening)
(Current R4 channel)



M4 CLEAR (Clear sound Listening)
(Current R5 channel)



M5: DEMONSTRATION (for showindow advertisement)

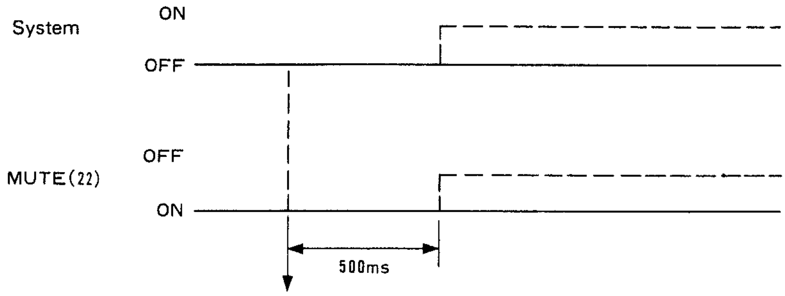


# CIRCUIT DESCRIPTION

## TIMING CHART

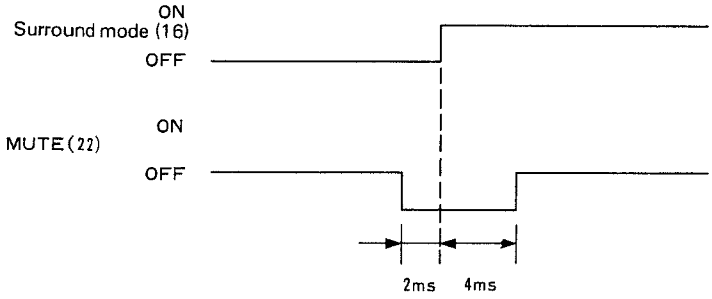
### (1) MUTE Timing

a: When connected AC cord


System
ON
OFF
MUTE(22)
OFF
ON
500ms

Memory backup
- Power ON/OFF
- Manual memory
- EQ. ON/OFF
- BASS BOOST ON/OFF
- Surround, loudness ON/OFF

b: Surround mode ON/OFF

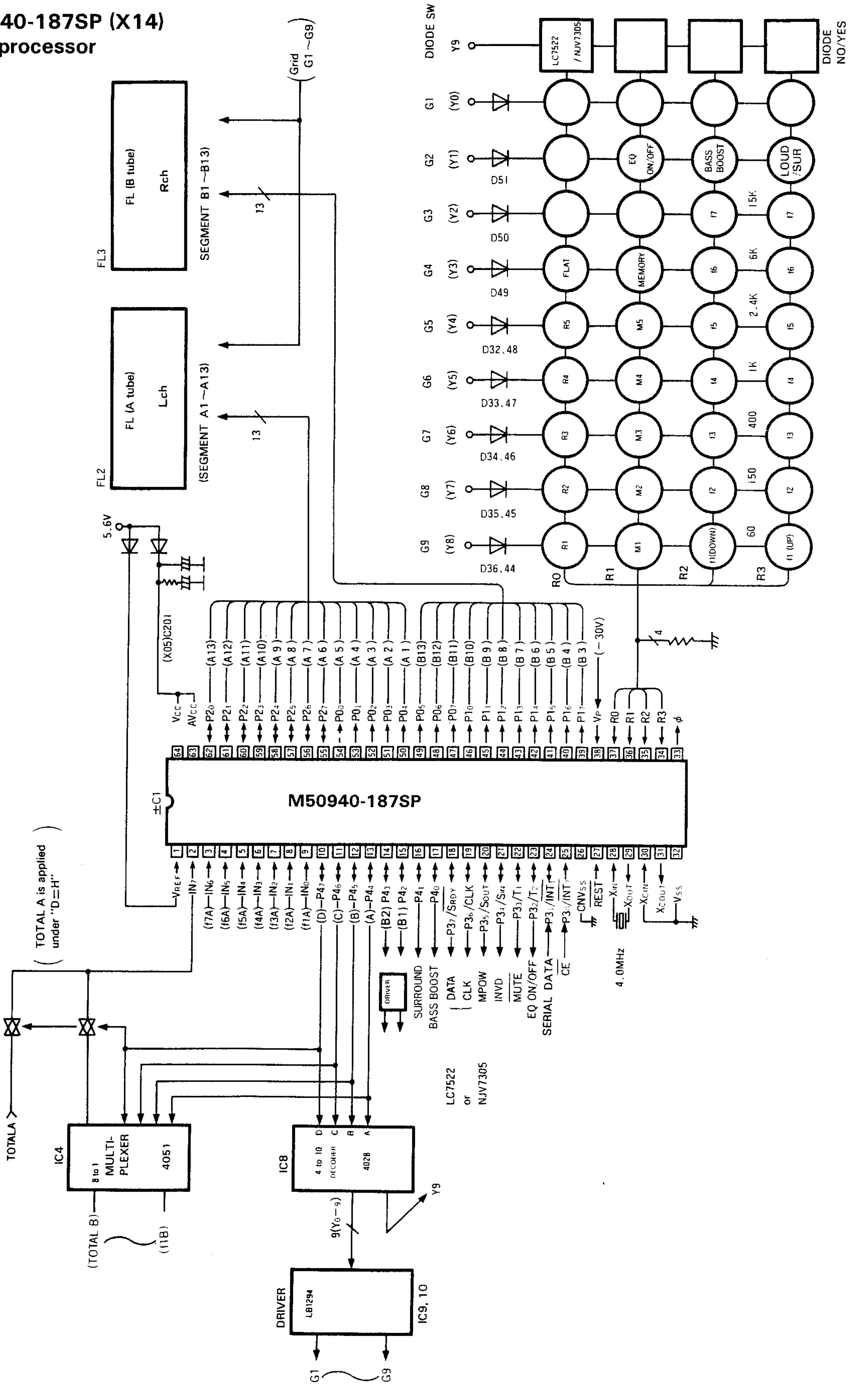

ON
Surround mode (16)
OFF
ON
MUTE(22)
OFF
2ms
4ms

Same condition in OFF mode

# RXD-24/24M

## CIRCUIT DESCRIPTION

**(X14)**
**IC2: M50940-187SP (X14)**
**Microprocessor**


M50940-187SP
FL3
FL (B tube)
Rch
FL2
FL (A tube)
Lch
SEGMENT B1 ~B13
(SEGMENT A1 ~A13)
13
Grid G1 ~G9
DIODE SW
Y9
LC7522 / NJV7305
DIODE NO/YES
G1 (Y0)
G2 (Y1)
G3 (Y2)
G4 (Y3)
G5 (Y4)
G6 (Y5)
G7 (Y6)
G8 (Y7)
G9 (Y8)
D51
D50
D49
D32, 48
D33, 47
D34, 46
D35, 45
D36, 44
EQ ON/OFF
BASS BOOST
LOUD /SUR
FLAT
MEMORY
R1 R2 R3 R4 R5
M1 M2 M3 M4 M5
f1 (DOWN) f2 f3 f4 f5 f6 f7
f1 (UP)
15K
6K
2.4K
1K
400
150
60
R0
R1
R2
R3
5.6V
(X05)C201
(−30V)
4
VCC
AVCC
P20 ~ P27
P00 ~ P07
P10 ~ P17
(A13) (A12) (A11) (A10) (A 9) (A 8) (A 7) (A 6) (A 5) (A 4) (A 3) (A 2) (A 1)
(B13) (B12) (B11) (B10) (B 9) (B 8) (B 7) (B 6) (B 5) (B 4) (B 3)
VP
R0 R1 R2 R3
φ
VREF
IN7
(f7A)—IN6
(f6A)—IN5
(f5A)—IN4
(f4A)—IN3
(f3A)—IN2
(f2A)—IN1
(f1A)—IN0
(D)—P47
(C)—P46
(B)—P45
(A)—P44
(B2) P43
(B1) P42
P41
P40
P37/SRDY
P36/CLK
P35/SOUT
P34/SIN
P33/T1
P32/T2
P31/INT1
P30/INT2
CNVSS
RESET
XIN
XOUT
XCIN
XCOUT
VSS
4.0MHz
DRIVER
SURROUND
BASS BOOST
DATA
CLK
MPOW
INVD
MUTE
EQ ON/OFF
SERIAL DATA
CE
LC7522 or NJV7305
TOTAL A is applied under "D=H"
TOTALA
IC4
8 to 1 MULTI-PLEXER
4051
(TOTAL B)
(f1B)
IC8
4 to 10 DECODER
4028
D C B A
9(Y0 ~ 9)
Y9
DRIVER
LB1294
IC9, 10
G1
G9

# CIRCUIT DESCRIPTION

## Pin Description

| Pin No. | Pin name | I/O | Name | Description |
|---|---|---|---|---|
| 1 | VREF | | | Power supply for A/D converter (5V). |
| 2 | IN7 | I | | A/D input for multiplexer and L-ch TOTAL signal. |
| 3~9 | IN6~IN8 | I | f7A~f1A | A/D input of L-ch. |
| 10~13 | P47~P44 | O | D~A | Control for multiplexer and 4 to 10 decoder. |
| 14, 15 | P43, P42 | O | B2, B1 | Drive for R-ch segments. |
| 16 | P41 | O | SURROUND<br>LOUDNESS | Control |
| 17 | P40 | O | BASS BOOST | |
| 18 | P37 | O | DATA | NJV7305 DATA |
| 19 | P36 | O | CLK | NJV7305 CLK |
| 20 | P35 | O | MPOW | FL tube drive |
| 21 | P34 | O | INVD | |
| 22 | P33 | O | $\overline{\text{MUTE}}$ | Control mute when power is ON/OFF and EQ is ON/OFF L: ON, H: OFF. |
| 23 | P32 | O | EQ ON/OFF | Control EQ circuit L: OFF, H: ON. |
| 24 | P31 | I | S. DATA | Synchro-data input. |
| 25 | P30 | I | $\overline{\text{CE}}$ | Detection of Backup L: BACKUP. |
| 26 | CNVSS | | | Mode change in microprocessor. (GND) |
| 27 | $\overline{\text{RESET}}$ | | | Reset terminal L: RESET. |
| 28, 29 | XIN, XOUT | | | System clock terminal (4 MHz). |
| 30, 31 | XCIN, XCOUT | | | No use. |
| 32 | Vss | | | GND of power supply. |
| 33 | $\phi$ | | | 1/4-divider of system clock (no use). |
| 34~37 | R3~R0 | I | | Key inputs. |
| 38 | VP | | | Pull-down power supply (−30 V). |
| 39~49 | P17~P05 | O | B3~B13 | Drive segments (3~13) of R-ch. |
| 50~62 | P04~P20 | O | A1~A13 | Drive segments (3~13) of L-ch. |
| 63 | AVcc | | | Power supply for A/D converter (5 V). |
| 64 | Vcc | | | Power supply for microprocessor (5 V). |

## <TEST MODE>

1. **Insert AC plug to the power supply under pressing FLAT key.**
2. **Confirm the following checks.**

2-1. At first, all of segments turn on.

2-2. MAX segments (+12 dB) of all frequency turn on when pressing M-2 key.

2-3. Min segments (−12 dB) of all frequency turn on when pressing M-3 key.

2-4. 3 points (+12 dB, 0 dB, −12 dB) of segments turn on in all frequency when UP or DOWN key is pressed.

3. **Pull the AC plug out when power switch on (reset).**

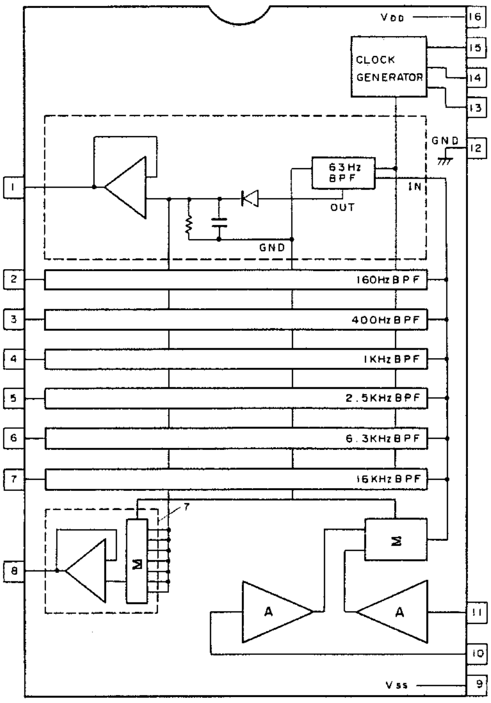
## <INITIAL STATE>

1. **Insert AC plug to the power supply under pressing MEMORY key on the graphic equalizer.**
2. **Confirm the following checks**
   - EQ MEMORY MODE: MANUAL
   - EQ CURVE: ±0 dB ALL FLAT
   - MANUAL EQ MEMORY: M1~M5 initialized value
   - EQ ON/OFF: OFF
   - PEAK HOLD ON/OFF: ON
   - MODE: Spectram analizer.

# CIRCUIT DESCRIPTION

### IC3.5: XR-1091 (X14-2760-21)
### Graphic Equalizer Display Filter Functions

1. A bandpase filter having audio bands of 63 Hz, 160 Hz, 400 Hz, 1 kHz, 2.5 kHz, 6.3 kHz, and 16 kHz is incorporated.
2. A terminal used to output the ORed value in each output peak level is incorporated.
3. A detector circuit and detection time constant (0.33s) for each output is incorporated.
4. An amplifier, with a gain of 30 dB of which the stereo input is mixed, is incorporated.
5. This filter consists of a switched capacitor filter and has internal clock oscillators.



**Pin Description**

| Pin No. | Name | Description | Pin No. | Name | Description |
|---|---|---|---|---|---|
| 1 | OUT63 | Peak hold output terminal of 63 Hz bandpass filter. Can be driven up to a 10 kΩ load. | 9 | Vss | Vss input (–4.5 to –6.5 V)<br>A capacitor is connected to ground. |
| 2 | OUT160 | Peak hold output terminal of 160 Hz bandpass filter. | 10 | RIN | Right-channel input. Input impedance is more than 1 × $10^{12}$ Ω |
| 3 | OUT400 | Peak hold output terminal of 400 Hz bandpass filter. | 11 | LIN | Left-channel input. Input impedance is more than 1 × $10^{12}$ Ω |
| 4 | OUT1K | Peak hold output terminal of 1 kHz bandpass filter | 12 | GND | Digital and analog ground |
| 5 | OUT2.5K | Peak hold output terminal of 2.5 kHz bandpass filter. | 13 | CLKC | A clock capacitor is connected to ground. |
| 6 | OUT6.3K | Peak hold output terminal of 6.3 kHz bandpass filter. | 14 | CLKR | Connected to pin 13 of the clock resistor. |
| 7 | OUT16K | Peak hold output terminal of 16 kHz bandpass filter. | 15 | CLK/2 | A 1/2 original oscillation clock is output. |
| 8 | OUTPEAK | OR peak hold output terminal. | 16 | VDD | VDD input (14.5 — 16.3 V).<br>A capacitor is connected to ground. |

# MECHANISM OPERATION DESCRIPTION

## Mechanism Operation Description

Fig. 1 shows the relationship of mechanisms in the STOP mode. The OPEN/CLOSE operation of the mechanism and the UP/DOWN operation of the pickup chassis when loading the disc are description below.

**Note 1 : The black arrow (OPEN) and the white arrow (CLOSE) in the operation description have the following meanings :**

**Black arrow (OPEN) : Tray opening direction**
**(Tray OPEN)**

**White arrow (CLOSE) : Tray closing direction**
**(Tray CLOSE)**

**Note 2 : Figures in the bracket (  ) in the operation description or accompanied with the part name in the diagram show the reference numbers in the Exploded View.**

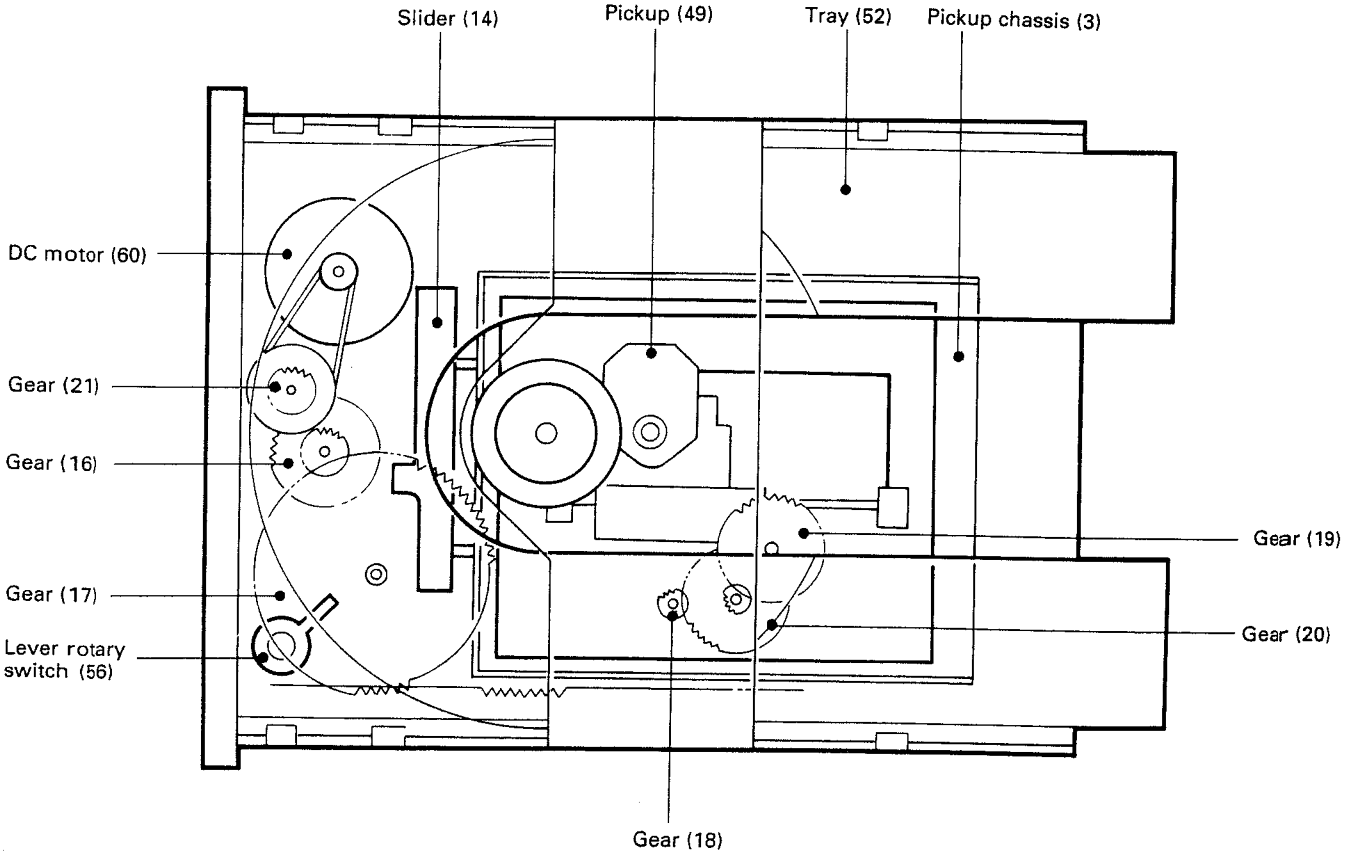

Slider (14)
Pickup (49)
Tray (52)
Pickup chassis (3)
DC motor (60)
Gear (21)
Gear (16)
Gear (17)
Lever rotary switch (56)
Gear (19)
Gear (20)
Gear (18)

Fig. 1 Tray closed status

# MECHANISM OPERATION DESCRIPTION

## CD

### 1. Tray OPEN/CLOSE Operation

By the rotation of the motor (❶), the gear (❷) is rotated and the tray starts OPEN/CLOSE (❸) operation. The OPEN/CLOSE operation stops when the protrusion of the gear comes in contact with the detection switch (❹).

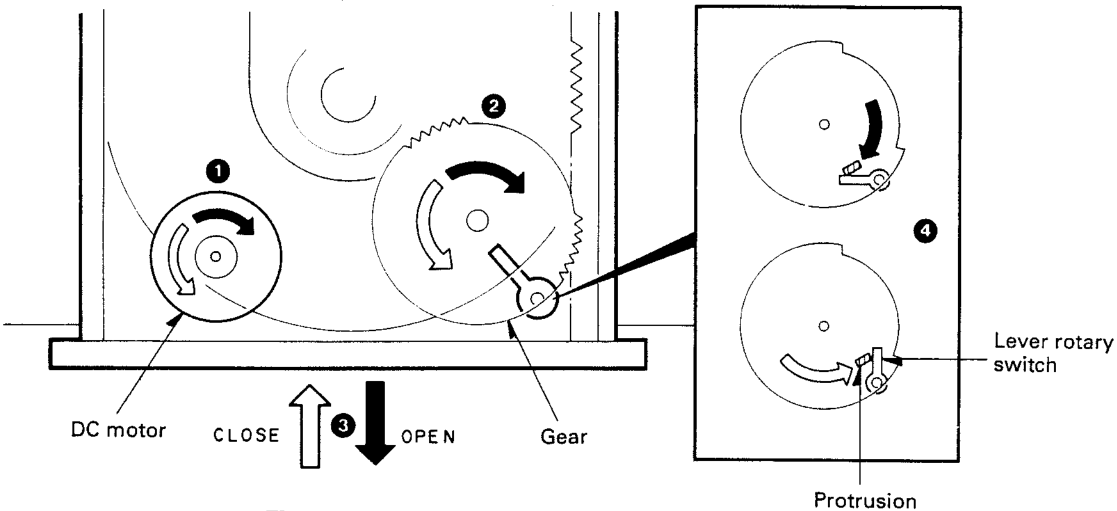

❷
❶
❹
Lever rotary switch
DC motor
CLOSE
❸
OPEN
Gear
Protrusion

Fig. 2 Tray OPEN/CLOSE operation

### 2. Pickup Chassis UP/DOWN Movement

Accompanied with the OPEN/CLOSE operation, the lever is shifted (❷) by the rotation of the gear (❶). Along with the grooves in the lever, the pickup chassis moves up and down (❸).

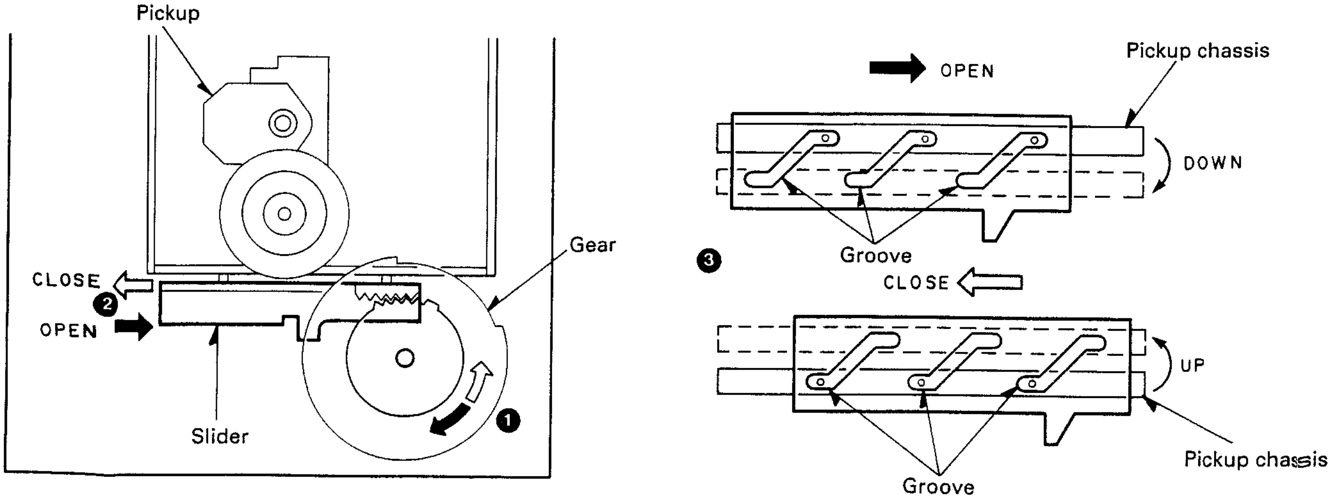

Pickup
Gear
CLOSE
❷
OPEN
Slider
❶
OPEN
Pickup chassis
DOWN
❸
Groove
CLOSE
UP
Pickup chassis
Groove

Fig. 3 Pickup chassis UP/DOWN movement

# MECHANISM OPERATION DESCRIPTION

### 3. Gear Installing Position

When re-installing the gear after removing it, attach the gear at the position (Ⓐ) shown in the condition when the pickup chassis has been lowered.

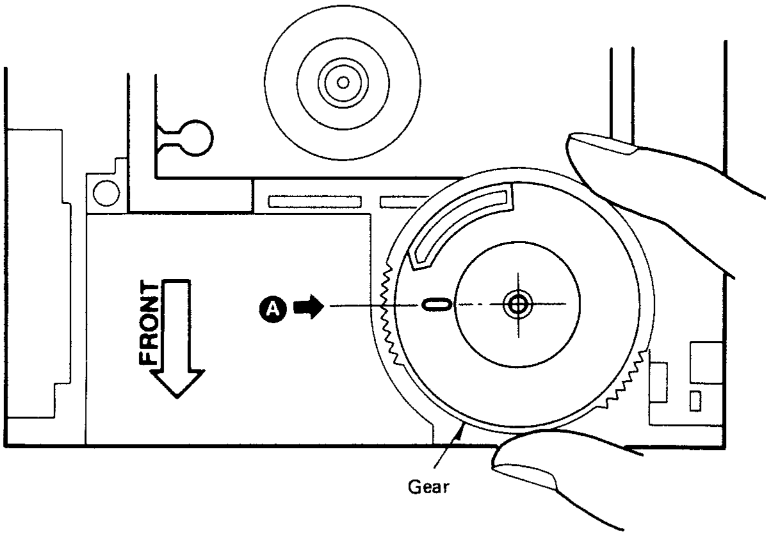


Fig. 4 Gear installing position

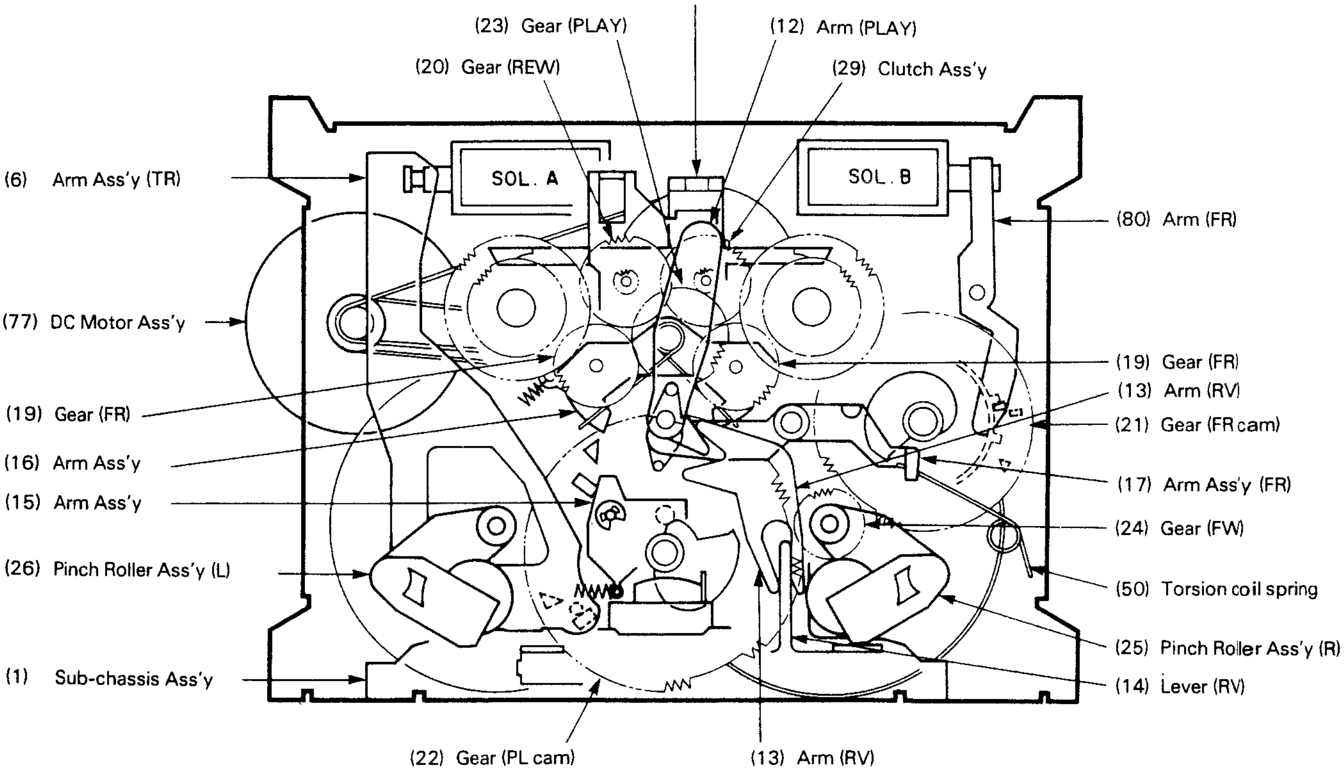
# RXD-24/24M

## MECHANISM OPERATION DESCRIPTION

### DECK

Figures inside (  ) in the diagram indicate the Ref. Nos. in the parts list. The illustrations are perspectives from the front unless otherwise specified.

**RXD-24 is not provided with Auto Reverse Function. This description and drawings are based on the Auto Reverse Mechanism.**


(33) Brake
(23) Gear (PLAY)
(12) Arm (PLAY)
(20) Gear (REW)
(29) Clutch Ass'y
SOL. A
SOL. B
(6) Arm Ass'y (TR)
(80) Arm (FR)
(77) DC Motor Ass'y
(19) Gear (FR)
(13) Arm (RV)
(19) Gear (FR)
(21) Gear (FR cam)
(16) Arm Ass'y
(17) Arm Ass'y (FR)
(15) Arm Ass'y
(24) Gear (FW)
(26) Pinch Roller Ass'y (L)
(50) Torsion coil spring
(25) Pinch Roller Ass'y (R)
(1) Sub-chassis Ass'y
(14) Lever (RV)
(22) Gear (PL cam)
(13) Arm (RV)

**Parts Layout (Front perspective)**

| | |
|---|---|
| **Driving power:** | **130 g-cm or more** |
| **Take up torque:** | **35~75 g-cm** |
| **FF/REW torque:** | **70~160 g-cm** |
| **Back tension torque:** | **3~8 g-cm** |

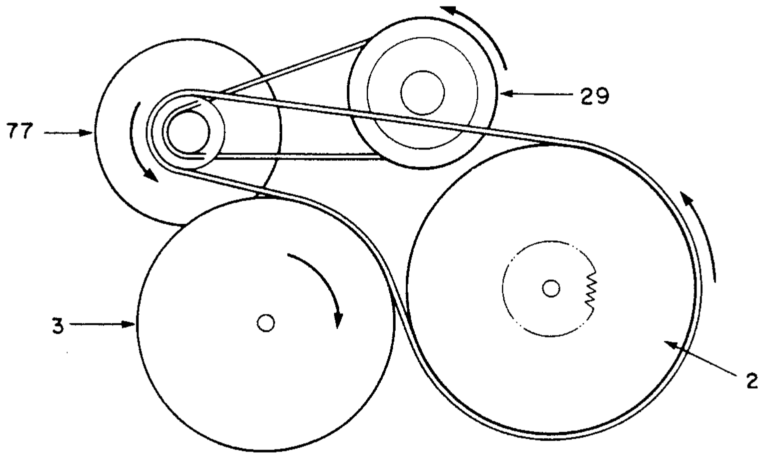


**Fig. 1 Transmission of Rotation**

# NISM OPERATION DESCRIPTION

ɔcessor, the SOL.A is
=.
ked on the TR Arm
stopper Ⓐ on the

shed toward the di-
ɔoss Ⓓ of the shift
ɪear (22) is rotated
ɔw ❸ and meshed

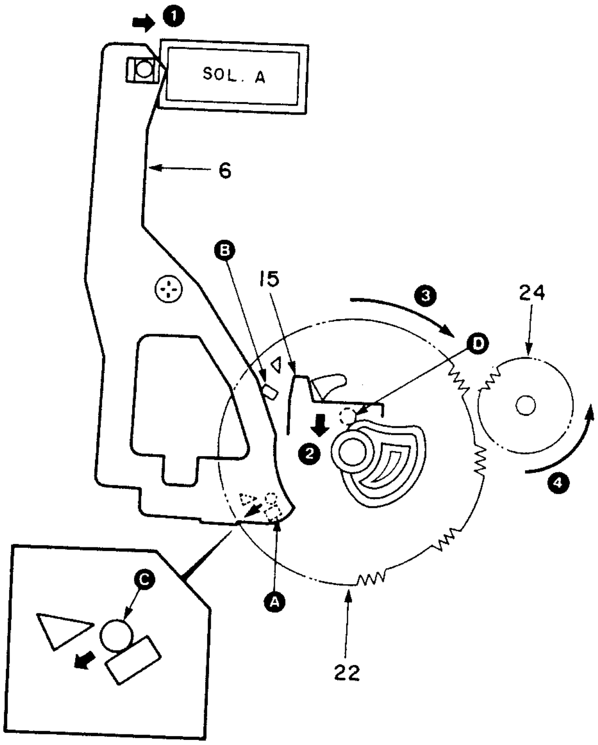

❶
SOL. A
6
Ⓑ
15
❸
24
Ⓓ
❷
❹
Ⓒ
Ⓐ
22

Fig. 2

lay cam gear (22)
5) is pulled up in
e cam Ⓔ on the
shaft Ⓒ on the
vith the stopper

ected to it is also

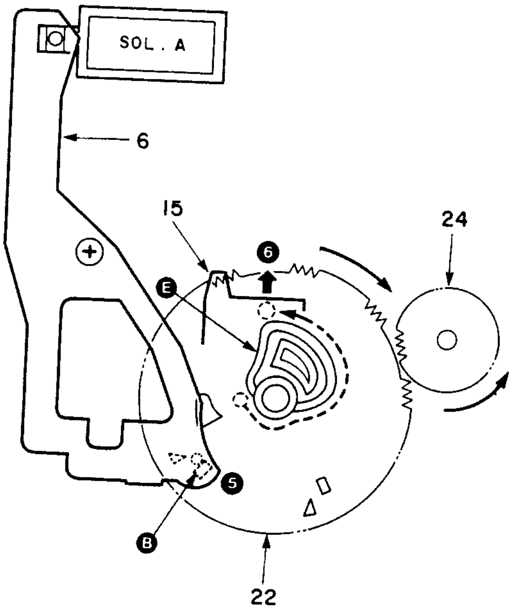

SOL. A
6
15
24
❻
Ⓔ
❺
Ⓑ
22

Fig. 3

# MECHANISM OPERATION DESCRIPTION

1-3 When the head chassis (1) is moved up, the brake arm (33) is also pushed up in the direction of the arrow ❼ and released from the reel.
Then, the RV lever B (14) pushes the spring of the pinch roller (25) upward until it is pressed against the capstan, and tape starts to run at this time. At the same time, the play gear (12) is tilted toward the direction of the arrow ❾ by the center notch of the head chassis (1), the play gear arm (23) is meshed with the Reel Ass'y (79), it is rotated in the direction shown in the illustration, and tape starts to be wound.

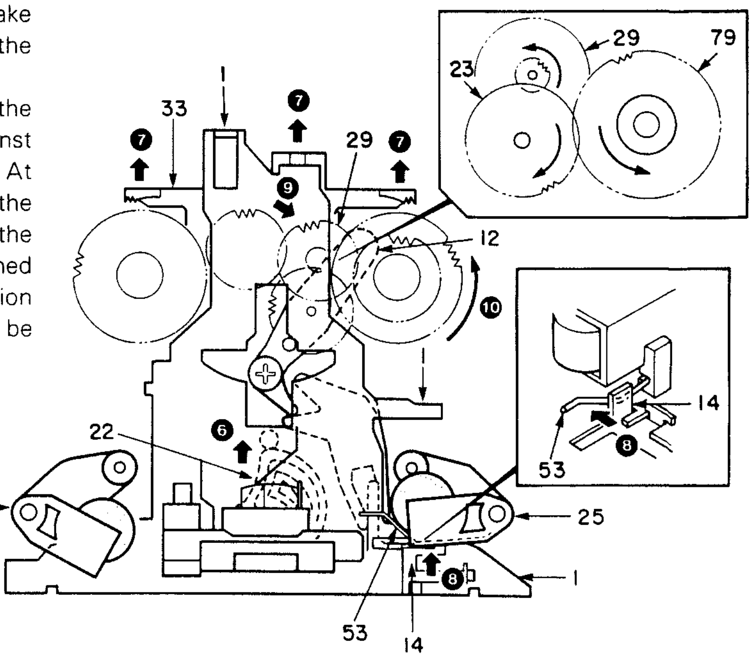


Fig. 4

**2. PLAY/REC → STOP operation**

When the SOL.A is turned ON again during play, the caulked shaft Ⓒ on the TR Arm Ass'y (6) is released from the stopper Ⓑ on the play cam gear (22), the play cam gear (22) starts rotation in the direction of the arrow, and it is stopped at the position of the stopper Ⓐ
At this time, the head chassis is returned by the spring in the direction of the arrow ❹ until the stop position.

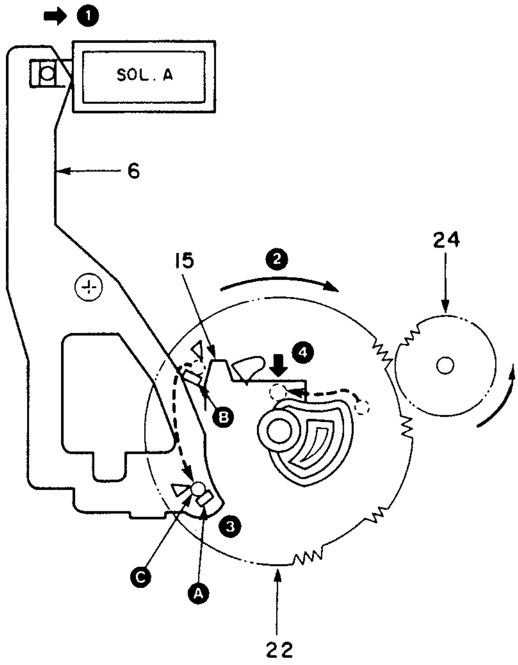


Fig. 5

# MECHANISM OPERATION DESCRIPTION

### 3. FF/REW operations

By the signal from the microprocessor, the SOL.B is turned ON then immediately OFF. The trigger arm FR (80) is moved in the direction ❶, the projection Ⓕ is moved in the direction ❷ and released from the stopper Ⓗ.

As the FR cam gear (21) is pushed in the direction of the arrow ❸ by the FR shift arm (17) and spring (84), the gear is moved slightly and meshed with the flywheel gear (24). The FR cam gear is further rotates, and is stopped at the position where the boss Ⓕ of the trigger arm FR (80) comes in contact with the stopper Ⓖ.

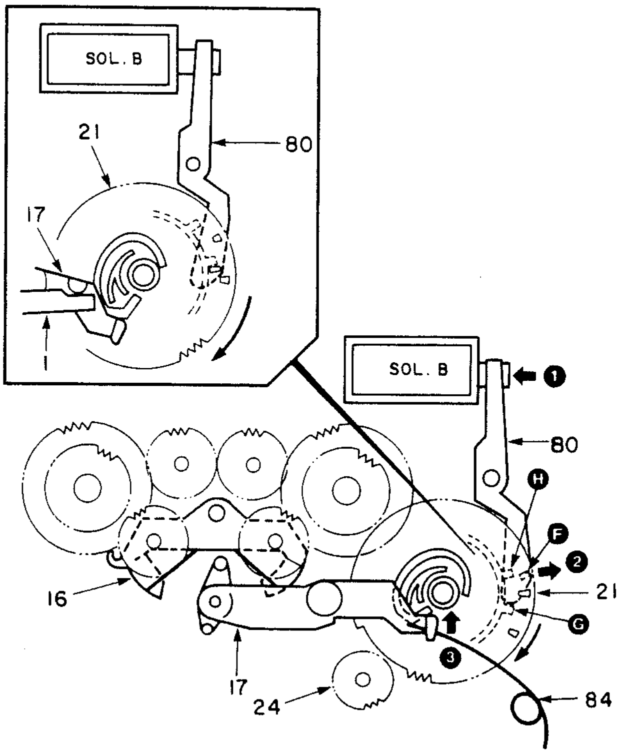


Fig. 6

### 4. FF operation

The FR shift arm (17) is moved in the direction of the arrow ❻ by the cam Ⓛ on the FR cam gear (21).

Then, the select arm (11) moves up along the shape of the mechanism base, and pushes up the FR arm spring (48). This causes the FR gear (19) on the FR arm (16) to be meshed with the clutch gear (29) and reel gear (79), which rotates in the direction of the arrow thereby putting the reel (79) into the FF operation.

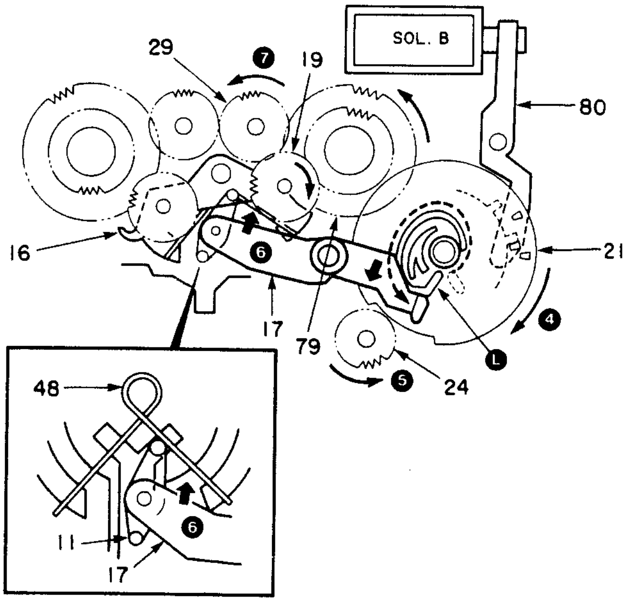


Fig. 7

# MECHANISM OPERATION DESCRIPTION

### 5. REW operation

Similarly to the FF operation, the select arm (11) moves up in the direction of the arrow ⑥ along the shape of the mechanism base, and pushes up the FR arm spring (48). This causes the FR gear (19) to be meshed with the REW gear (20) and reel gear (79), which rotates in the direction of the arrow thereby putting the reel (79) into the FF operation.

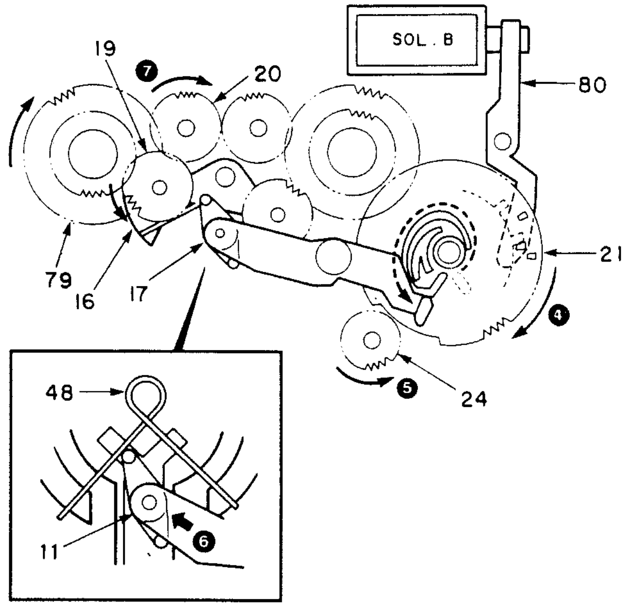


Fig. 8

### 6. Braking operation

When the select arm (11) moves upward, the "∠/" portion of the select arm comes in contact with the "⌓" portion of the brake arm (33), and disengages the brake arm by lifting it in the direction of the arrow ⑨

### 7. FF/REW switching

The FF and REW operations are switched by varying the tilting angle of the selector arm (11).

FF operation...... The SOL.B is turned OFF at the moment the trigger arm FR (80) is released from the stopper on the FR cam gear. As the FR lever (9) is still pulled by the spring (44), the select arm (11) moves upward in the direction of the arrow Ⓐ.

REW operation ... Similarly, when the SOL.B is maintained ON for a while, the select arm (11) moves upward with the FR lever (9) in the position indicated by the dotted line, so it moves up in the direction of the arrow Ⓑ causing the REW operation.

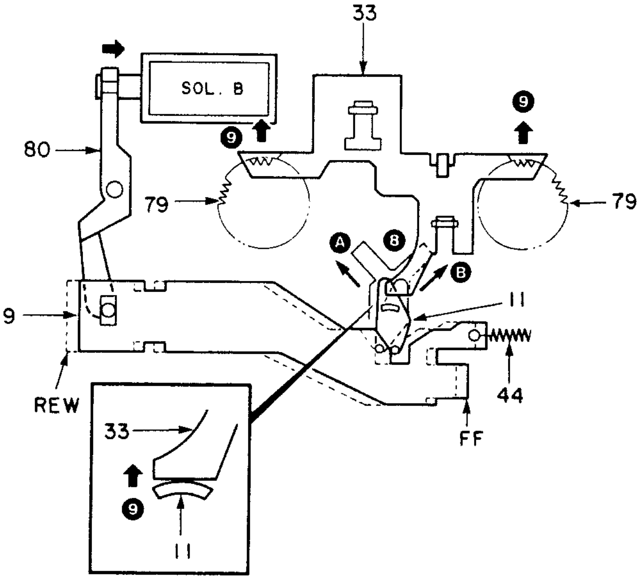


Fig. 9 (Rear perspective)

# MECHANISM OPERATION DESCRIPTION

### 8. PLAY → CUE/REVIEW operation

8-1 When the SOL.B is turned ON during play, the FR cam gear (21) is meshed with the flywheel gear, and the FR shirt arm (17) is pushed down in the direction of the arrow ❷ by the cam on the FR cam gear (21). At this time, the select arm (11) on the other end of the FR shift arm (17) is pushed up in the direction of the arrow ❹, so that the cue operation takes place in the condition of Fig. 10 and the review operation takes place in the condition of Fig. 11.

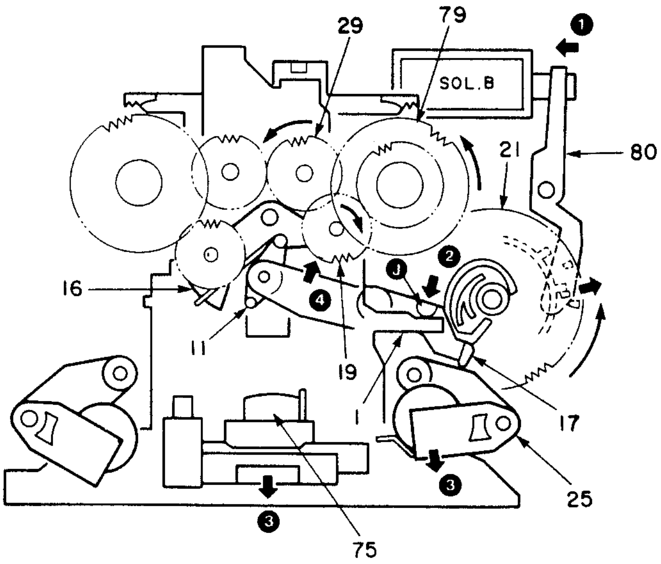


Fig. 10

8-2 The head chssis (1) is pushed down by the boss Ⓙ on the FR shift arm (17), and the Head Ass'y (75), tape and pinch roller (25) are released from the pressure against the capstan shaft.

The play gear arm (12) is located on the other end of the select arm (11) of the FR shift arm. When the head chassis (1) moves downward, the boss Ⓚ of the play gear arm (12) is moves along the center notch of the head chassis, thereby disengaging the play gear (23) an reel (79).

In Cue/Review operation, the reel is operated by the FR gear (19) similarly to the case of FF/REW operation.

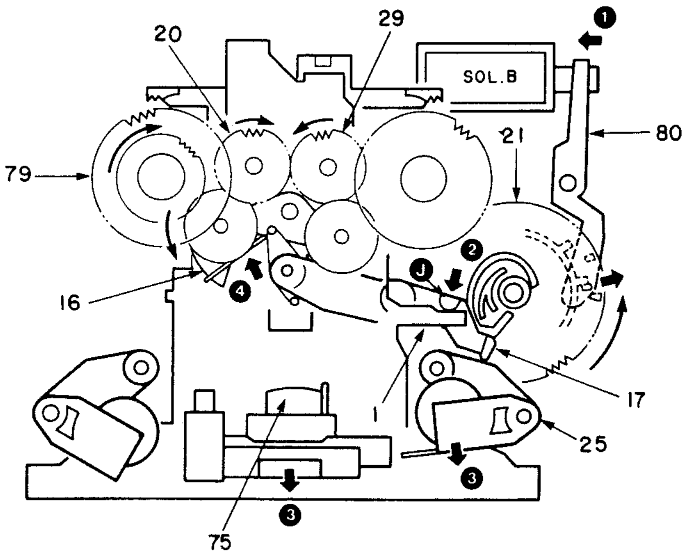


Fig. 11

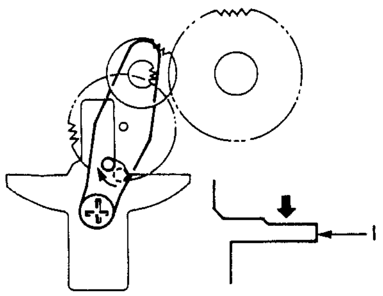


Fig. 12 CUE/REVIEW

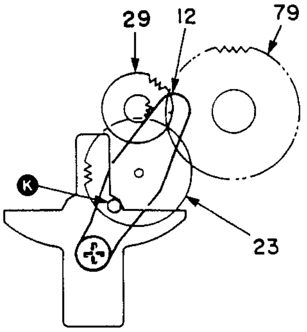


Fig. 13 PLAY

# MECHANISM OPERATION DESCRIPTION

### 9. CUE/REVIEW → PLAY operation

When the SOL.B is turned ON, the trigger arm FR (80) moves in the direction of the arrow ❶, so the boss Ⓕ is moved in the direction of the arrow ❷ and released from the stopper Ⓖ. As the cam of the FR cam gear (21) is kept pushed in the direction of the arrow ❸ by the FR shift arm (17), the gear continues rotation until the boss Ⓕ comes in contact with the stopper Ⓗ.

When the FR shift arm (17) moves in the direction of the arrow ❸, the select arm (11) is moved down in the direction of the arrow, and the FR arm (16) is released from the reel.

As the head chassis (1) is no longer pushed by the boss Ⓙ of the FR shift arm (17), the chassis also moves up, the pinch roller is pushed against the capstan, the tape against the head, and the play operation starts.

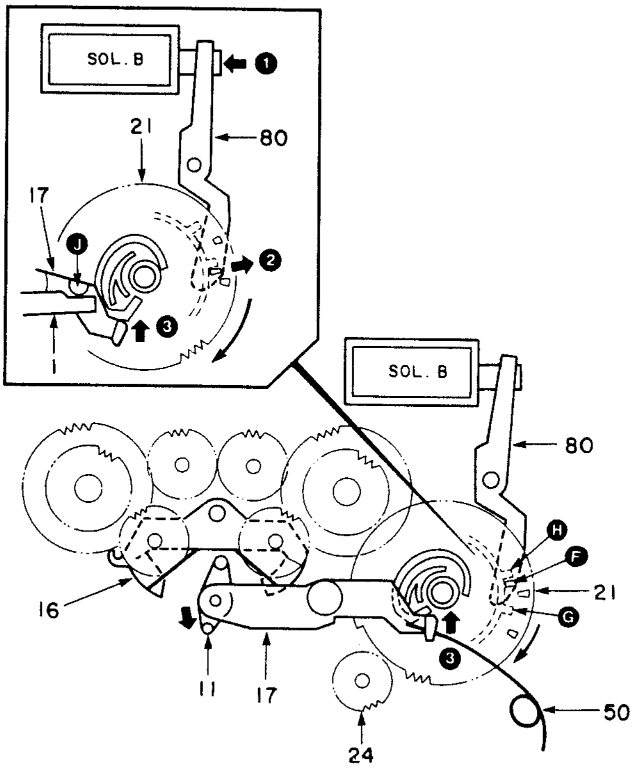


Fig. 14

# MECHANISM OPERATION DESCRIPTION

### 10. FWD ↔ RVS switching

10-1 When the play cam gear (22) starts rotation in the direction of the arrow ❸, the boss Ⓜ of the RV lever A (5) moves to the left and right along the shape of the cam. Finally, when the play cam gear (22) has rotated by a 1/4 turn, one of the two tracks is selected.

The track to be selected is dependent on the operation of the SOL.A.

**FWD direction**

The SOL.A is turned OFF immediately after it is turned ON.

As the RV lever A (5) which is pulled by the spring (45) is in the FWD position, the boss Ⓜ moves along the outer track.

Because the RV lever A (5) and RV lever B (14) are connected as shown in the illustration, the RV lever B (14) also comes in the FWD position. The RV arm (13) and play gear arm (14), which are operated by the projection on the RV lever B (14), are moved in the directions of the arrows ❷ ❸, so the play gear (23) in the FWD mode is meshed with the Reel Ass'y (79) and clutch gear (29), rotating the Reel Ass'y in the FWD direction.

At this time, the head is also put in the FWD direction (position shown in the illustration) by the head select gear (34).

**RVS direction**

The SOL.A is maintained ON for a while after it is turned ON. Therefore, the TR Arm Ass'y (6) moves in the direction of the arrow ❷ as shown in the illustration, and the RV lever A (5) is pushed by it and moves in the RVS direction.

10-2 The boss Ⓜ on the RV lever A (5) moves along the inner track shown in the illustration, so the RV lever A (5) is fixed in the RV position shown in the illustration. The RV lever B (14) is also put in the RVS position shown in the illustration. As the projection on the RV lever B moves the RV arm (13) and play gear arm in the directions of the arrow ❷ ❸, the play gear (23) in the RVS mode is meshed with the REW gear (20) and Reel Ass'y (79), rotating the Reel Ass'y (79) in the RVS direction.

At this time, the head is also put in the RVS direction by the head select gear (34).

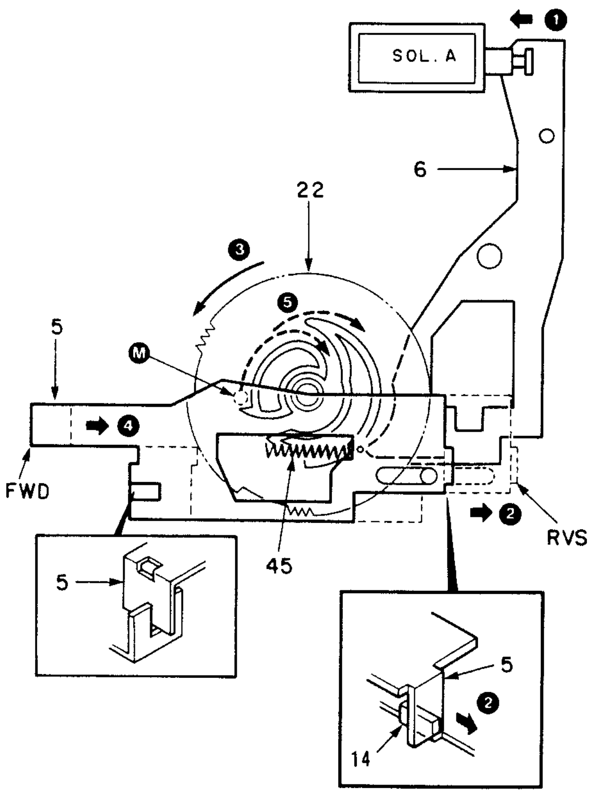


Fig. 15 (Rear perspective)

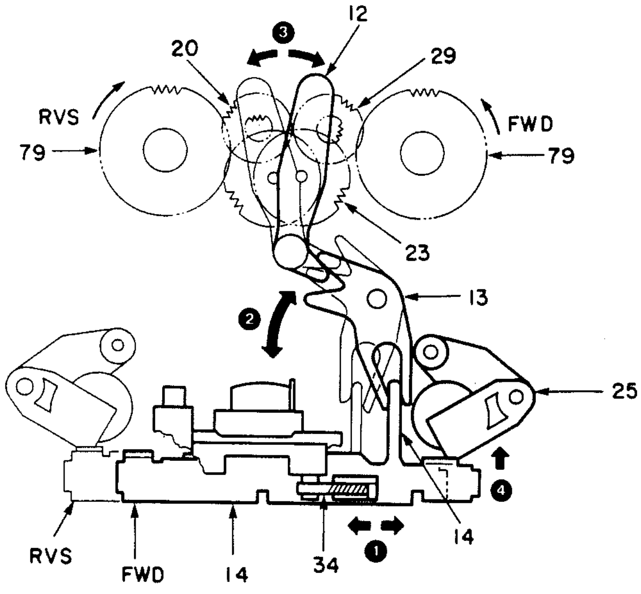


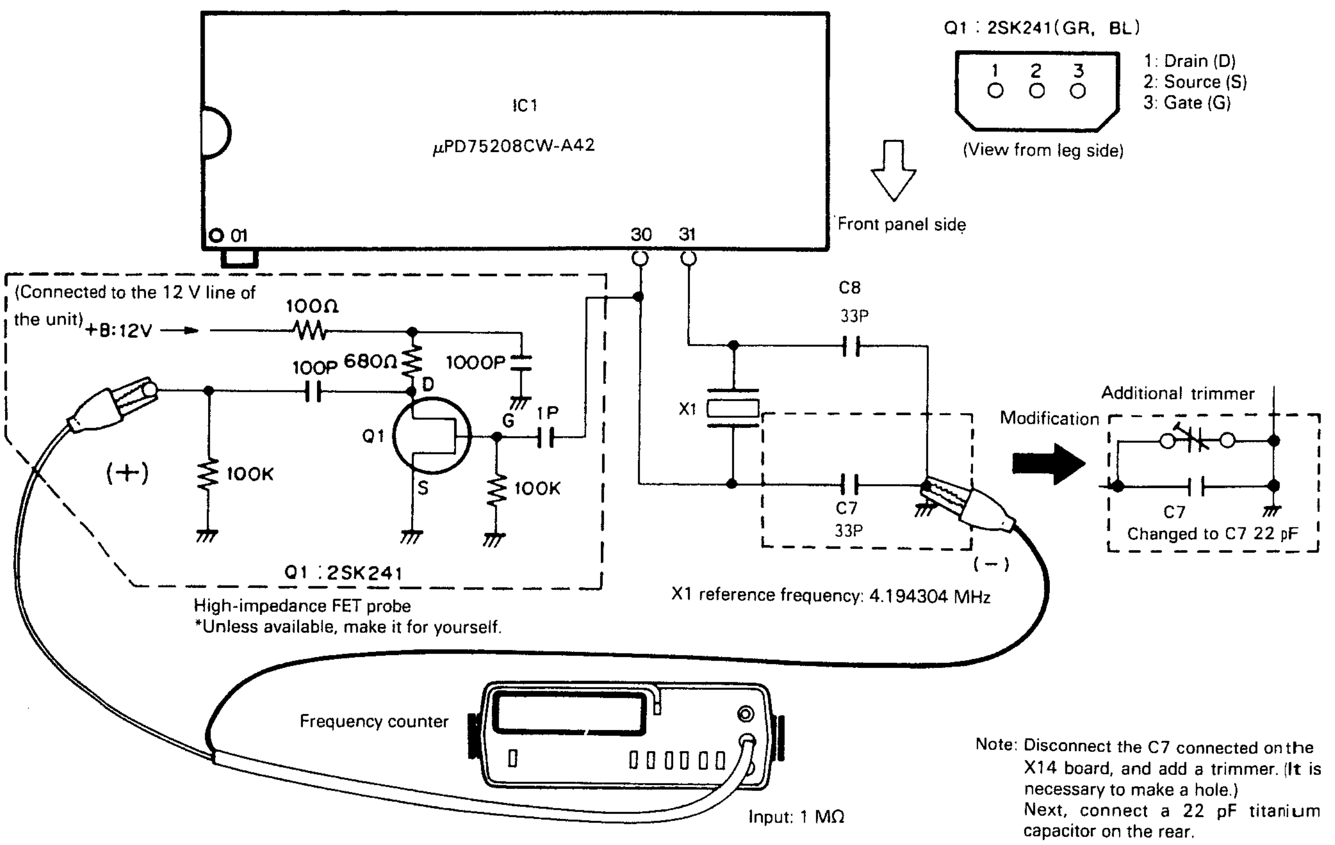
Fig. 16

# ADJUSTMENT

## SERVICE POINT

### 1. Timer accuracy improvement method:

| Capacitance value of additional trimmer | C7 constant modification |
|---|---|
| 20 pF (red), C05-0303-05 | 22 pF titanium capacitor (CC45 FCH1H220J) |


(X14-2760-21)
IC1
μPD75208CW-A42
01
30
31
Q1 : 2SK241(GR, BL)
1 2 3
1: Drain (D)
2: Source (S)
3: Gate (G)
(View from leg side)
Front panel side
(Connected to the 12 V line of the unit)
+B:12V
100Ω
100P
680Ω
1000P
D
G
1P
Q1
S
(+)
100K
100K
Q1 : 2SK241
High-impedance FET probe
*Unless available, make it for yourself.
C8
33P
X1
C7
33P
(−)
X1 reference frequency: 4.194304 MHz
Modification
Additional trimmer
C7
Changed to C7 22 pF
Frequency counter
Input: 1 MΩ

Note: Disconnect the C7 connected on the X14 board, and add a trimmer. (It is necessary to make a hole.)
Next, connect a 22 pF titanium capacitor on the rear.

**The timer accuracy is within ±40 seconds for one month as a standard. For improved timer accuracy, perform the following procedure:**

(1) If the timer accuracy is without the standard, replace X1 (L77-1176-05) near the microprocessor IC on a printed board (X14-).

(2) Even if within the standard, for further improved accuracy, change the constant of C7 in the crystal oscillation circuit of microprocessor IC1 and add a trimmer.

**Adjustment method** (Use a high-impedance buffer to avoid frequency deviation.)

Connect a high-accuracy frequency counter to pin 30 by way of the FET probe shown above, and adjust the frequency fully up to the first digit of the X1 reference frequency 4,194,304 Hz. (Connect the negative (—) side of the frequency counter to the GND side of C7.)

Notes: 1. As regards the positive (+) side of the frequency counter, arrange as short a distance as possible between pin ㉚ of IC1 and 1P of the input stage of the FET probe.

2. Perform the trimmer adjustment after energization of around 10 minutes at normal temperature.

(3) Monthly error calculation method

For example, when the result of measurement at pin 10 by the frequency counter is fx=4,194,275 Hz...

$$\text{Monthly error [sec]} = \frac{fx - fo}{fo} \times \text{the number of seconds taken for one month}$$

$$= \frac{4{,}194{,}275 - 4{,}194{,}304}{4{,}194{,}304} \times (60 \times 60 \times 24 \times 30)$$

$$= -17.9 \text{ [sec]}$$

* A minus value as the monthly error means a loss.

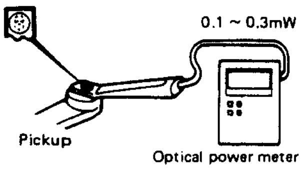
# ADJUST MENT

## <CD>

| No. | ITEM | INPUT SETTING | OUTPUT SETTING | PLAYER SETTING | ALIGNMENT POINT | ALIGN FOR | FIG |
|---|---|---|---|---|---|---|---|
| 1 | LASER POWER | – | Apply the sensor section of the optical power meter on the pickup lens. | Short-circuit pins TEST and turn the power on to enter the test mode. Turn the gear clockwise to move the pickup outwards by hand. Press the CHECK key to check that the LD emits light. Then, confirm that the display is" 02 ". | – | On the power from 0.1 to 0.3mW, when the diffraction grating is correctly aligned with the RF level of 1.0Vp-p or more and the TE (servo open) level of 1.5Vp-p or more, the pickup is acceptable. (pic. 1 ~ 4) | (a) |
| 2 | VCO (NORMAL) | – | Connect a frequency counter to PLCK (TP9). (X32) | Press the STOP key. and confirm that the display is"01". | L2 (X32) | 4.300MHz ± 5kHz | (b) |
| 3 | TRACKING ERROR BALANCE | Test disc Type 4 | Connect an oscilloscope as follows.<br>CH1: RF (X32 CN30-1)<br>CH2: TE (X32 CN30-6) | Press the REPEAT key to open the tray. Load a disc and close the tray by pushing it by hand. Then,press the CHECK key. Confirm that the display is"03". | TE BALANCE VR1 (X32) | Symmetry between upper and lower patterns, or DC=0±0.05V (pic. 5) | (c) |
| 4 | FOCUS ERROR BALANCE | Test disc Type 4 | Connect an oscilloscope as follows.<br>CH1: RF (X32 CN30-1)<br>CH2: TE (X32 CN30-6) | Press the PLAY key. Confirm that the display is" 05 ". | FE BALANCE VR2 (X32) | Optimum eyepattern (pic. 6) | (d) |
| 5 | FOCUS GAIN | Test disc Type 4 Apply signal of 600Hz, 0.2Vrms to CN30 pin 2. (X32) | Connect an LPF to CN30 pin 3, to which connect an oscilloscope or an AC voltmeter. (X32) | Press the PLAY key. Confirm that the display is" 05 ". | FOCUS GAIN VR3 (X32) | 0.2Vrms | (e) |
| 6 | TRACKING GAIN | Test disc Type 4 Apply signal of 1.2kHz, 0.2Vrms to CN30 pin 5. (X32) | Connect an LPF to CN30 pin 6, to which connect an oscilloscope or an AC voltmeter. (X32) | Press the PLAY key. Confirm that the display is" 05 " . | TRACKING GAIN VR4 (X32) | 0.2Vrms | (e) |

(Note) Type 4 disc: SONY YEDS-18 Test Disk or equivalent.
LPF: Around 47kΩ+390pF or so.

### (a) Laser Power



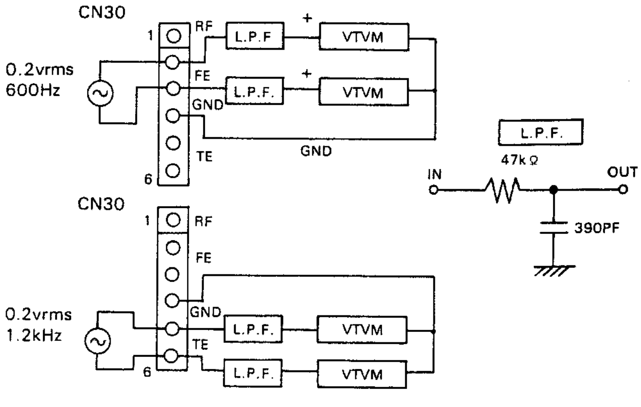
### (e) Focus Gain, Tracking Gain

FOCUS GAIN

Two VTVMs should read the same value (0.2 Vrms)

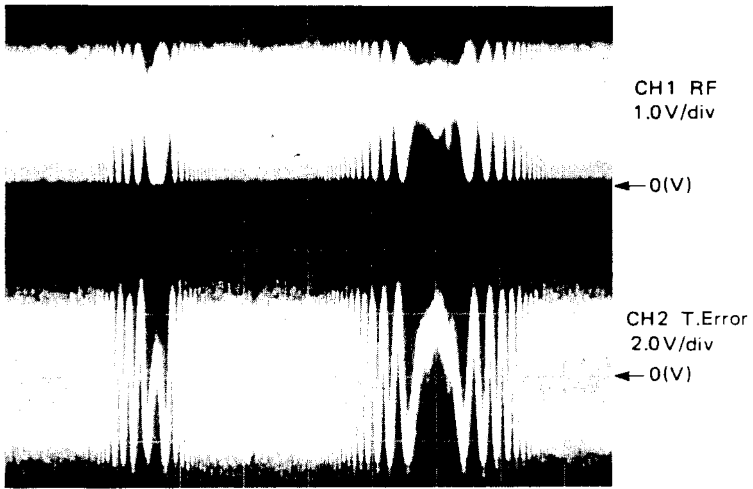
TRACKING GAIN

Two VTVMs should read the same value (0.2 Vrms)



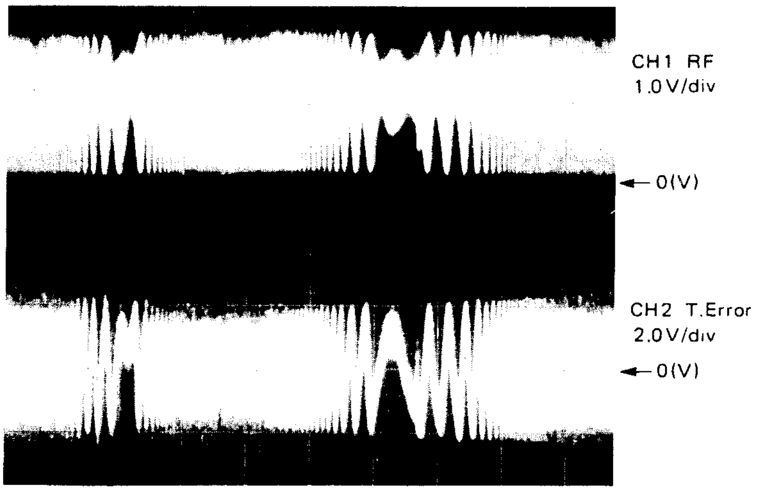
# ADJUSTMENT

## (a) DIFFRACTION GRID ADJUSTMENT



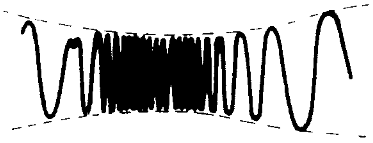
(Photo. 1)

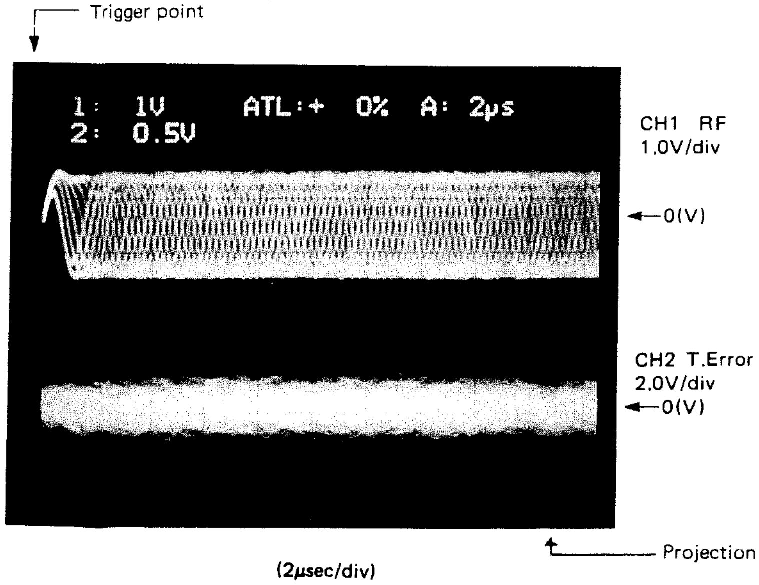
- RF signal and T.Error signal after diffraction grating adjustment.



(Photo. 2)

- RF signal and T.Error signal when there is small diffraction grating position error.
- The T.Error signal level is small, and the envelope is as shown in the diagram below.

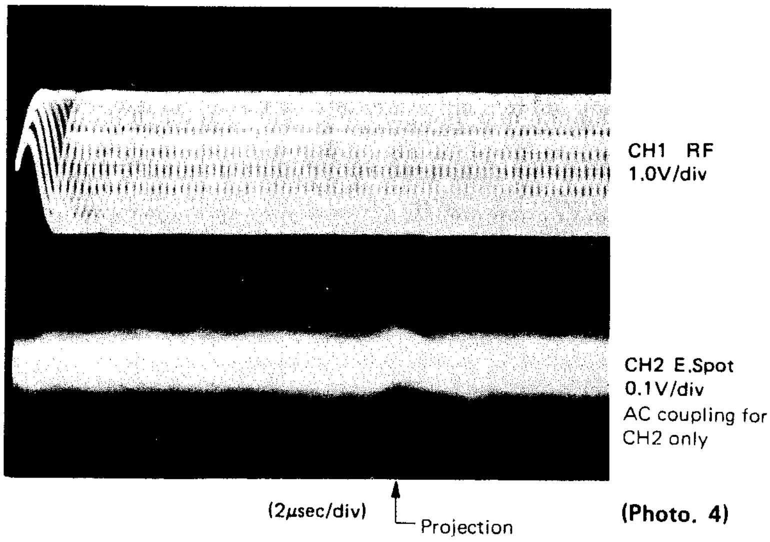




(Photo. 3)

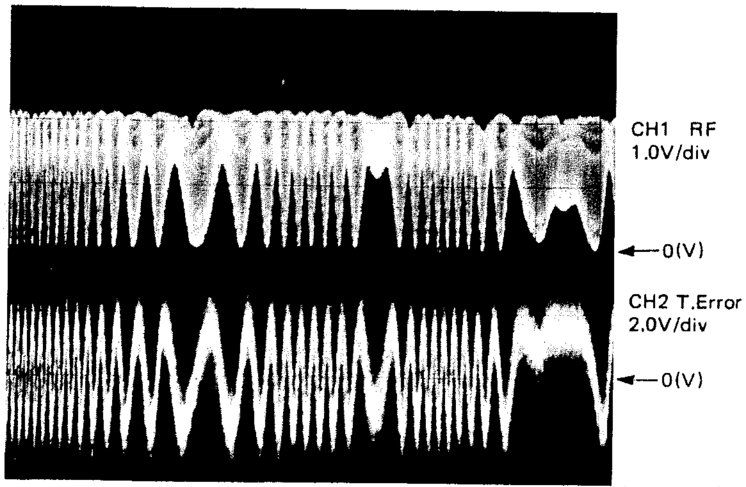
- RF signal and T.Error signal in test mode (with focusing ON).
- When the sub-beam traces the same bit series as the main beam during diffraction grating adjustment, bringing the RF trigger point to the position shown in the Photo causes a "projection" to be observies in the T.Error waveform.

## ADJUSTMENT



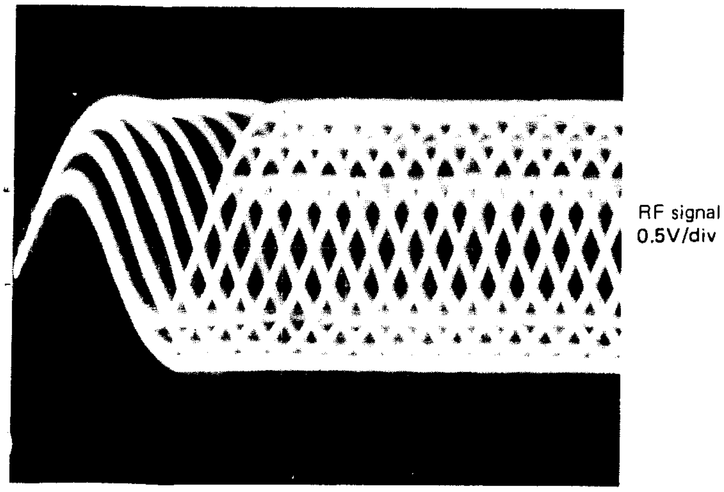
**(Photo. 4)**

- RF signal and E.Spot signal in test mode (PLAY).
- If the diffraction grating has been adjusted properly, the influence of triggering is observed on the E.Spot waveform of approx. 12μs after RF signal, in the form of a projection.



**(Photo. 5)**

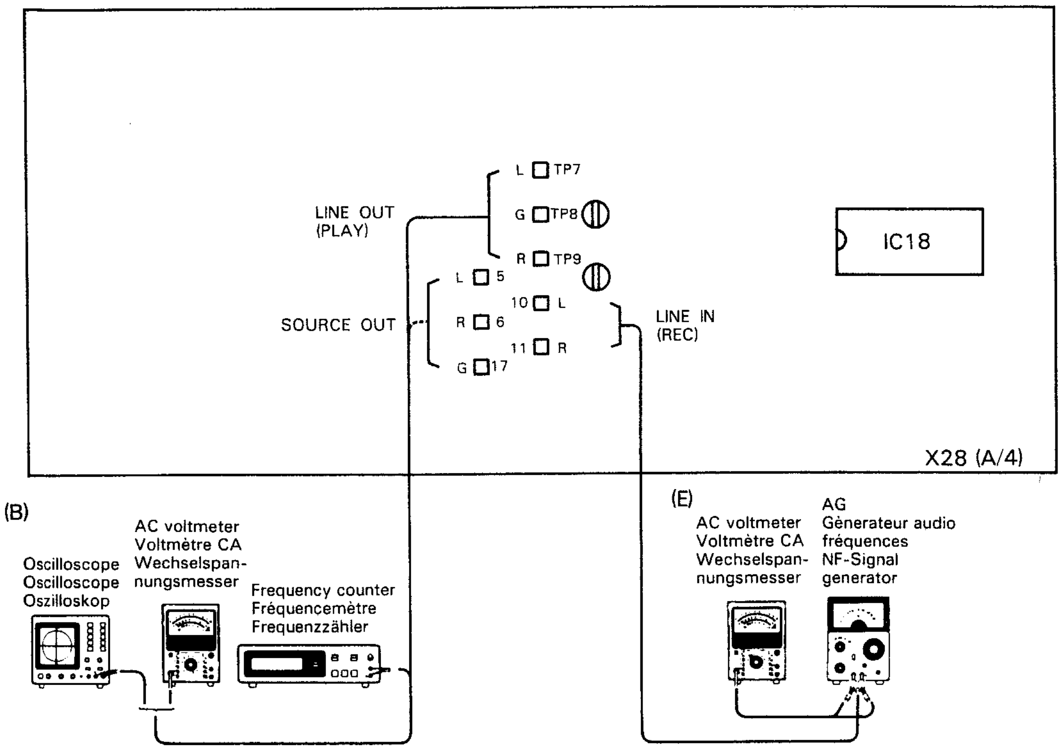
- RF signal and T.Error signal; in test mode (Focusing ON). (Disc type 4)
- Adjust T.Error so that the waveform is symmetrical above and below 0V.



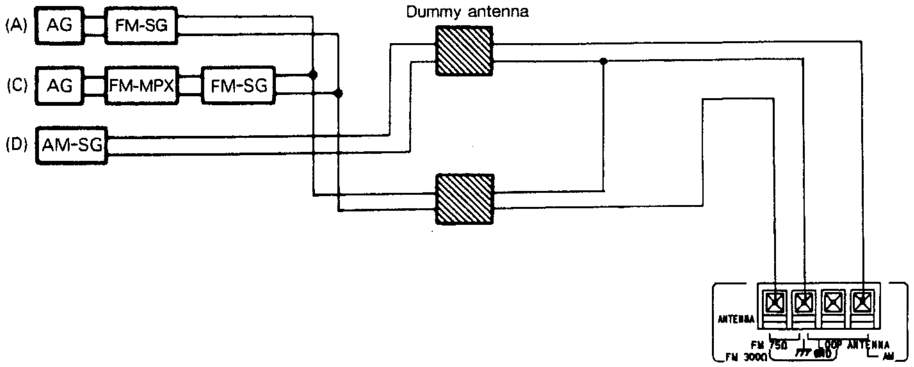
**(Photo. 6)**

- RF signal in test mode (PLAY).
- Perform the tangential and focusing offset adjustments so that each of the center cross points are focused into one point on the display. The crossing points above and below the center shall also be displayed clearly.

# ADJUSTMENT


L TP7
G TP8
R TP9
LINE OUT (PLAY)
L 5
R 6
G 17
SOURCE OUT
10 L
11 R
LINE IN (REC)
IC18
X28 (A/4)
(B)
Oscilloscope
Oscilloscope
Oszilloskop
AC voltmeter
Voltmètre CA
Wechselspannungsmesser
Frequency counter
Fréquencemètre
Frequenzzähler
(E)
AC voltmeter
Voltmètre CA
Wechselspannungsmesser
AG
Gènerateur audio fréquences
NF-Signal generator

## Connection

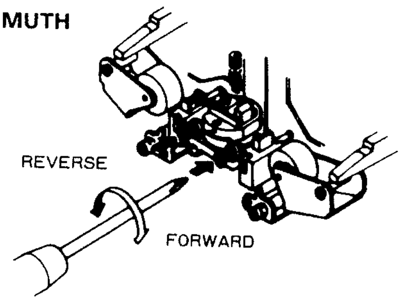

(A) AG FM-SG
(C) AG FM-MPX FM-SG
(D) AM-SG
Dummy antenna
ANTENNA
FM 75Ω
FM 300Ω
GND
LOOP ANTENNA
AM

# ADJUSTMENT

## <DECK>

| No. | ITEM | INPUT SETTINGS | OUTPUT SETTINGS | CASSETTE TAPE DECK SETTINGS | ALIGNMENT POINTS | ALIGN FOR | FIG. |
|---|---|---|---|---|---|---|---|
| CASSETTE DECK SECTION | | TAPE:NORMAL, DOLBY:OFF, INPUT:LINE | | | | 0dBs=0.775V | |
| I REC/PLAY HEAD | | | | | | | |
| [1] | DEMAGNETIZATION | – | – | POWER: OFF Remove the cassette door. | REC/PLAY head | Demagnetize the REC/PLAY head with a head demagnetizer. | |
| [2] | CLEANING | – | – | PLAY | REC/PLAY head erase head, capstan, pinch roller. | Clean the REC/PLAY head erase head, capstan and pinch roller using a cotton swab slightly damped with alcohol. | |
| [3] | AZIMUTH | TCC-153<br>MTT-114<br>10kHz, -10dB | Connect AC voltmeter to TP7(Lch) or TP9(Rch) | PLAY | Azimutht adjustment screw | Maximum output. | (f) |
| II PC BOARD (X28-2110) | | | | | | | |
| (1) | TAPE SPEED (HI SPEED) | TCC-110<br>MTT-111<br>3kHz | Connect an AC voltmeter to TP7(Lch) or TP9(Rch) | Connect a Counter between GND and TP15(A) or TP16(B) PLAY | DECK A: VR10<br>DECK B: VR12 | Adjust the tape speed so that a 6kHz signal is produced at the center of the tape | |
| (2) | TAPE SPEED (NORMAL) | TCC-110<br>MTT-111<br>3kHz | Connect an AC voltmeter to TP7(Lch) or TP9(Rch) | Connect a Counter between GND and TP15(A) or TP16(B) | DECK A: VR9<br>DECK B: VR11 | Adjust the tape speed so that a 3kHz signal is produced at the center of the tape. | |
| III PC BOARD (X28-2110) | | | | | | | |
| <1> | PLAYBACK LEVEL | MTT-150 400Hz | Connect an AC voltmeter to TP7(Lch) or TP9(Rch) | PLAY | DECK A: VR1 (L)<br>VR2 (R)<br>DECK B: VR3 (L)<br>VR4 (R) | Output level: -6.0dBs | |
| | | MTT-256 315Hz | | | | Output level: -9.0dBs | |
| | | MTT-256U, TCC-160 315Hz | | | | Output level: -5.0dBs | |
| <2> | BIAS CURRENT | (E)<br>1kHz, -30dBs<br>10kHz, -30dBs | Connect an AC voltmeter to TP7(Lch) or TP9(Rch) | Adjust VR7 so that the REC monitor output becomes -29dBs at 1kHz, then record and playback signal of 1kHz and 10kHz in alternation. | VR7 (L)<br>VR8 (R) | Record 1kHz and 10kHz in alternation and adjust the variable resistors which control the bias current so that the same playback level is obtained. | |
| <3> | RECORD LEVEL | (E)<br>1kHz, -10dBs | Connect an AC voltmeter to TP7(Lch) or TP9(Rch) | Record playback a 1kH signal under the conditions set in <2>. | VR5 (L)<br>VR6 (R) | Adjust the variable resistors so that a playback level of -9dBs is obtained. | |

**(f) AZIMUTH**



# ADJUSTMENT

## <TUNER>

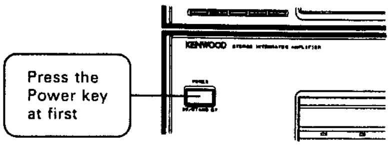
AM.Section: If alignment piont is "-", Confirm the value.
If not,replace the front end pack.

| No. | ITEM | INPUT SETTINGS | OUTPUT SETTINGS | TUNER SETTINGS | ALIGNMENT POINTS | ALIGN FOR | FIG. |
|---|---|---|---|---|---|---|---|
| FM SECTION | | | SELECTOR: FM | | | | |
| 1 | DETECTOR | (A)<br>98.0MHz<br>1kHz,±75kHz dev<br>60dBμ(ANT input) | Connect a DC voltmeter between TP3 and TP4. | AUTO or MONO<br>98.0MHz | L6<br>(X05-) | 0V | (g) |
| 2 | VCO | (A)<br>98.0MHz<br>0 dev<br>100dBμ(ANT input) | Connect a frequency counter between TP2 and GND. | AUTO<br>98.0MHz | VR2<br>(X05-) | 19.00kHz | (h) |
| 3 | DISTORTION<br>(STEREO) | (C)<br>98.0MHz<br>1kHz,±68.25kHz dev<br>Selector:L or R<br>Pilot:±6.75kHz dev<br>60dBμ(ANT input) | (B) | 98.0MHz | IFT<br>(Front end) | Minimum distortion. | |
| 4 | SEPARATION<br>(E type only) | (C)<br>98.0MHz<br>Stereo signal<br>60dBμ(ANT input) | (B) | AUTO<br>98.0MHz | VR4<br>(X05-) | Minimum crosstalk. | |
| 5 | TUNING LEVEL | (A)<br>98.0MHz<br>0 dev<br>14dBμ(ANT input) 75Ω | (B) | AUTO or MONO<br>98.0MHz | VR1<br>(X05-) | Adjust VR1 and stop at the point where FL1(TUNED) goes on. | |
| AM−MW SECTION | | | Keep the AM loop antenna installed. SELECTOR: AM or MW | | | | |
| (1) | BAND EDGE<br>(1) | – | Connect a DC voltmeter between TP1(VT) and TP5(GND). | 530kHz<br>(531kHz) | – | 1.3V | |
| (2) | BAND EDGE<br>(2) | – | Connect a DC voltmeter between TP1(VT) and TP5(GND). | 1610kHz<br>(1602kHz) | – | 7.0V | |
| (3) | RF ALIGNMENT | (D)<br>990kHz<br>400Hz,30% mod<br>24dBμ(ANT input) | (B) | 990kHz | L2 (BLACK)<br>(X05-) | Maximum amplitude and symmetry of the oscilloscop display. | |
| AM−LW SECTION (E type only) | | | Keep the AM loop antenna installed. SELECTOR: LW | | | | |
| (4) | BAND EDGE<br>(1) | – | Connect a DC voltmeter between TP1(VT) and TP5(GND). | 153kHz | – | 2.3V | |
| (5) | BAND EDGE<br>(2) | – | Connect a DC voltmeter between TP1(VT) and TP5(GND). | 281kHz | – | 7.0V | |
| | | | Repeat alignments (4) and (5) several times. | | | | |
| (6) | RF ALIGNMENT | (D)<br>216kHz<br>400Hz,30% mod<br>32dBμ(ANT input) | (B) | 216kHz | L3 (BLACK)<br>(X05-) | Maximum amplitude and symmetry of the oscilloscope display. | |

# Operations using timer

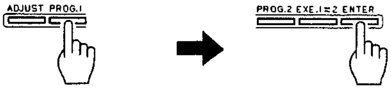
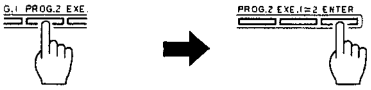
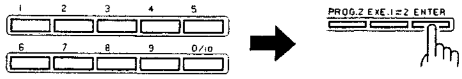
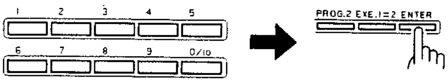
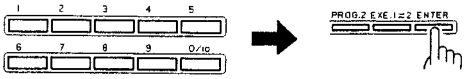
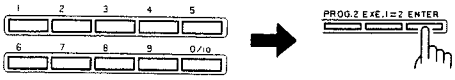
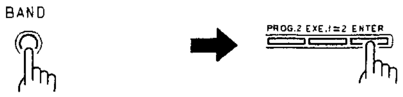
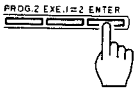
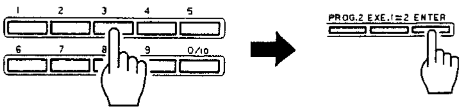
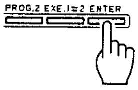
## ■ Preparations

The preparations consist of the setting of the timer ON and OFF times (and the preset station No. when receiving radio broadcast is required).


Press the Power key at first

Examples: Setting timer radio reception from 7:30 AM to 8:00 AM of station preset under FM 3 in timer program 1.

Setting timer CD playback from 11:00 PM to 11:30 PM in timer program 2.

| | Timer reception/recording of radio broadcast | Timer playback of CD or tape |
|---|---|---|
| 1 | **Enter the program setting mode.**<br>Press the PROG. 1 key. Press the ENTER key.<br><br> ADJUST PROG.1<br>PROG.2 EXE.1⇄2 ENTER | **Enter the program setting mode.**<br>Press the PROG.2 key. Press the ENTER key.<br><br> G.I PROG.2 EXE.<br>PROG.2 EXE.1⇄2 ENTER |
| 2 | **Input the ON time.**<br>Input with numeric keys. Press the ENTER key.<br><br> 1 2 3 4 5<br>6 7 8 9 0/10<br>PROG.2 EXE.1⇄2 ENTER<br>Press "0", "7", "3" and "0" to input 7:30 AM. | **Input the ON time.**<br>Input with numeric keys. Press the ENTER key.<br><br> 1 2 3 4 5<br>6 7 8 9 0/10<br>PROG.2 EXE.1⇄2 ENTER<br>Press "2", "3", "0" and "0" to input 11:00 PM. |
| 3 | **Input the OFF time.**<br>Input with numeric keys. Press the ENTER key.<br><br> 1 2 3 4 5<br>6 7 8 9 0/10<br>PROG.2 EXE.1⇄2 ENTER<br>Press "0", "8", "0" and "0" to input 8:00 AM. | **Input the OFF time.**<br>Input with numeric keys. Press the ENTER key.<br><br> 1 2 3 4 5<br>6 7 8 9 0/10<br>PROG.2 EXE.1⇄2 ENTER<br>Press "2", "3", "3" and "0" to input 11:30 PM. |
| 4 | **Select the broadcast band.**<br>Press the BAND key. Press the ENTER key.<br><br> BAND<br>PROG.2 EXE.1⇄2 ENTER<br>Select FM. | **Press the ENTER key.**<br><br> PROG.2 EXE.1⇄2 ENTER |
| 5 | **Select the preset station No.**<br>Press one of the numeric keys. Press the ENTER key.<br><br> 1 2 3 4 5<br>6 7 8 9 0/10<br>PROG.2 EXE.1⇄2 ENTER<br>Press "3".<br>Now the time setting is complete. | **Press the ENTER key.**<br><br> PROG.2 EXE.1⇄2 ENTER<br>Now the time setting is complete. |

• To change the ON and OFF time, the procedure above must be repeated from the beginning.

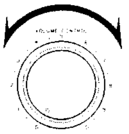
# ■ Receiving radio broadcast with timer

**Preparations :**

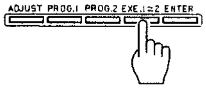
1. **Perform the preparation steps 1 to 5 described on page 85.**
2. **Remove disc from the CD player.**
3. **Remove tapes from the cassette decks.**

**In case of a mistake, re-start from the beginning.**

**1 Adjust the volume and tone.**

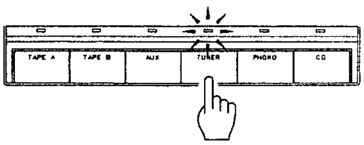


**2 Specify the execution of timer program.**
**Press the EXE.1 ⇄ 2 key.**

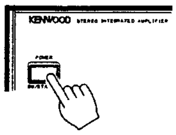


Check the lighted Program No. indicator.

**3 Select the TUNER input.**



**4 Switch the power to STAND-BY.**

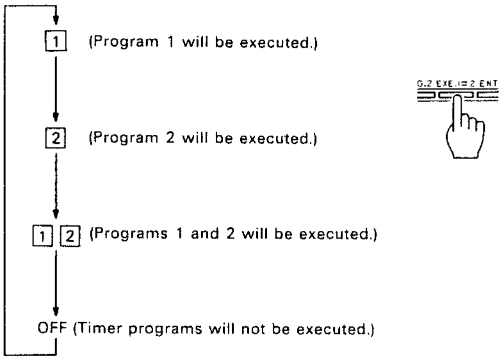


The displays on the system components are extinguished.

**5 Check that the TIMER REC function is OFF.**
**The TIMER REC indicator should go off.**

**How to specify the execution:**

Every time the EXE. 1 ⇄ 2 key is pressed, one or both of the program No. indicators light(s) in the order as shown below.
The lighted indicator(s) indicate(s) the timer programs the execution of which are specified.



1 (Program 1 will be executed.)

2 (Program 2 will be executed.)

1 2 (Programs 1 and 2 will be executed.)

OFF (Timer programs will not be executed.)

- When the timer is not to be used, be sure that both of the Program No. indicators are "off".

**When the set time comes:**

The power of the system is turned ON when the timer ON time comes, and reception of the set station starts. The power is turned off at the timer OFF time.

**To continue reception beyond the timer OFF time:**

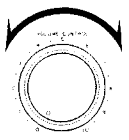
- If it is before the OFF time, press the EXE. 1 ⇄ 2 key so that the Program No. indicator goes "off".
- If it is after the OFF time and power has already been turned off, press the POWER key to turn the power ON.

## ■ Playing CD with timer

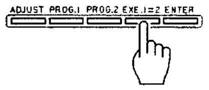
**Preparations :**

1. Perform the preparation steps 1 to 5 described on page 85.
2. Place a disc in the CD player.
3. Remove tapes from the cassette decks.
4. If it is required to play the desired tracks in the desired order, program them referring to page 24.

1 **Adjust the volume and tone.**

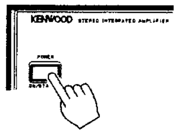


2 **Specify the execution of timer program.**
**Press the EXE. 1 ⇄ 2 key.**



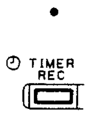
Check the lighted Program No. indicator.

3 **Switch the power to STAND-BY.**



The displays on the system components are extinguished.

4 **Check that the TIMER REC function is OFF.**
**The TIMER REC indicator should go off.**



**When the set time comes:**

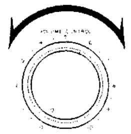
The power of the system is turned ON when the timer ON time comes, and playback of the disc starts.
The power is turned off at the timer OFF time.

## ■ Playing tape(s) with timer

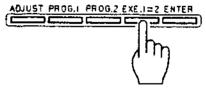
**Preparations :**

1. Perform the preparation steps 1 to 5 described on page 85.
2. Insert tapes in the cassette decks (both Decks A and B can be used, but Deck A is given priority).

1 **Adjust the volume and tone.**

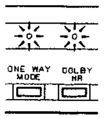


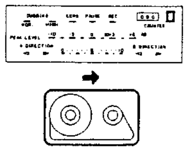
2 **Specify the execution of timer program.**
**Press the EXE. 1 ⇄ 2 key.**



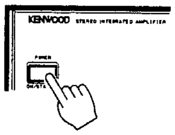
Check the lighted Program No. indicator.

3 **Set the DOLBY NR and ONE WAY MODE switches as required, and check the tape transport direction(s).**



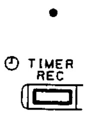


4 **Switch the power to STAND-BY.**

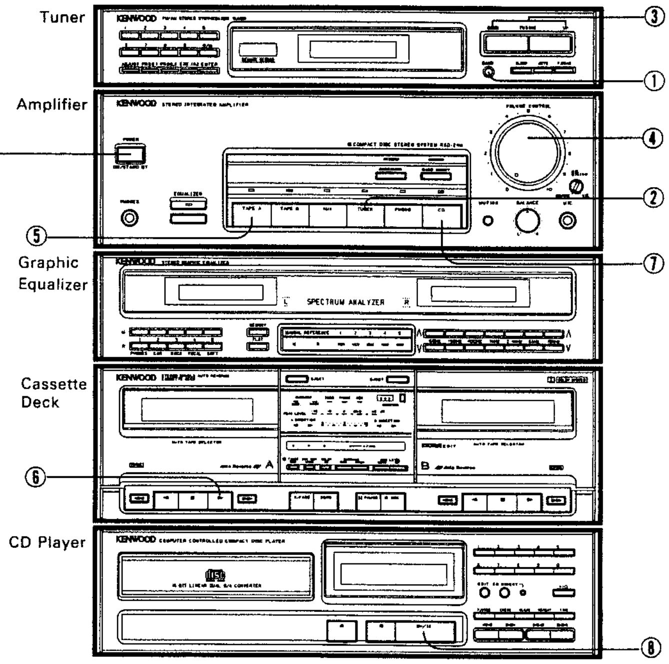


The displays on the system components are extinguished.

5 **Check that the TIMER REC function is OFF.**
**The TIMER REC indicator should go off.**



# Listening to sound



Press the POWER key of the amplifier.

**Easy Operation function**

The playback of the desired source component can be started by simply pressing the corresponding input selector key (TAPE A, TAPE B, TUNER, CD, PHONO) on the amplifier. On the contrary, when a source component is to be played, the corresponding input indicator on the amplifier lights up automatically. The same function occurs also when the remote control unit is operated.

| | To listen to a radio broadcast | To listen to a tape | To listen to a CD |
|---|---|---|---|
| 1 | **Select the tuner input.**<br>Press the TUNER key ② or BAND key ①. | **Insert a tape in Deck A.** | **Place a CD on the tray.** |
| 2 | **Select a station.**<br>Press the TUNING UP or DOWN key ③. | **Play the tape.**<br>Press the TAPE A key ⑤, or press the play key ⑥. | **Play the CD.**<br>Press the CD key ⑦, or press the play/pause key ⑧. |
| 3 | **Adjust the volume.**<br>• Turn the VOLUME CONTROL ④ clockwise for an optimum volume. | | |

**Input selector keys of amplifier**

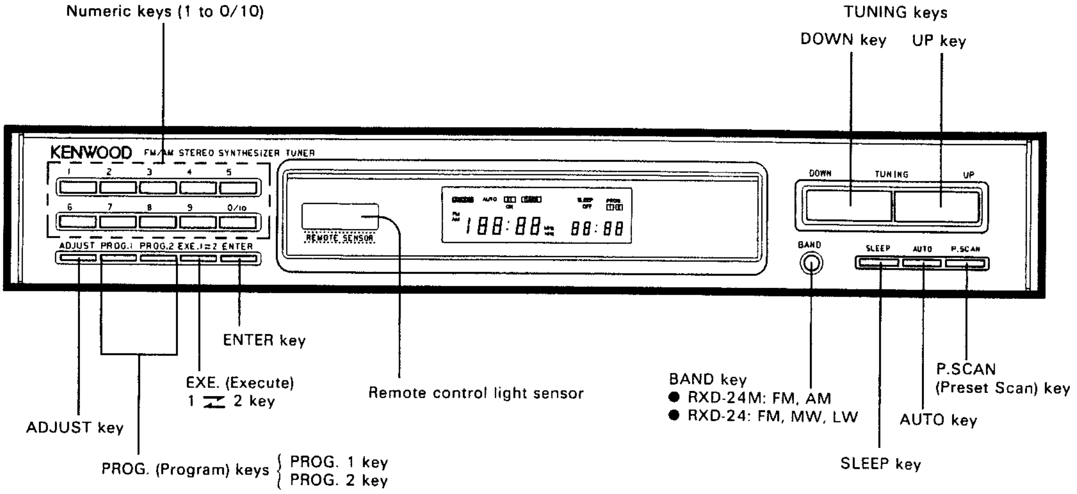
When the power is switched on, the input selector keys of the amplifier are initialized as follows.

Priority order 1. Cassette deck: If a tape is present in a cassette deck, it is played back automatically. If tapes are present in both decks, playback starts with Deck A.

Priority order 2. CD player: If tape are not present in cassette decks while a CD is present in the CD player, the CD is played. If no tape or CD is present in the cassette decks and CD player, the source which has been selected before the power was turned off before (radio broadcast, analog disk, etc.) starts to be played.

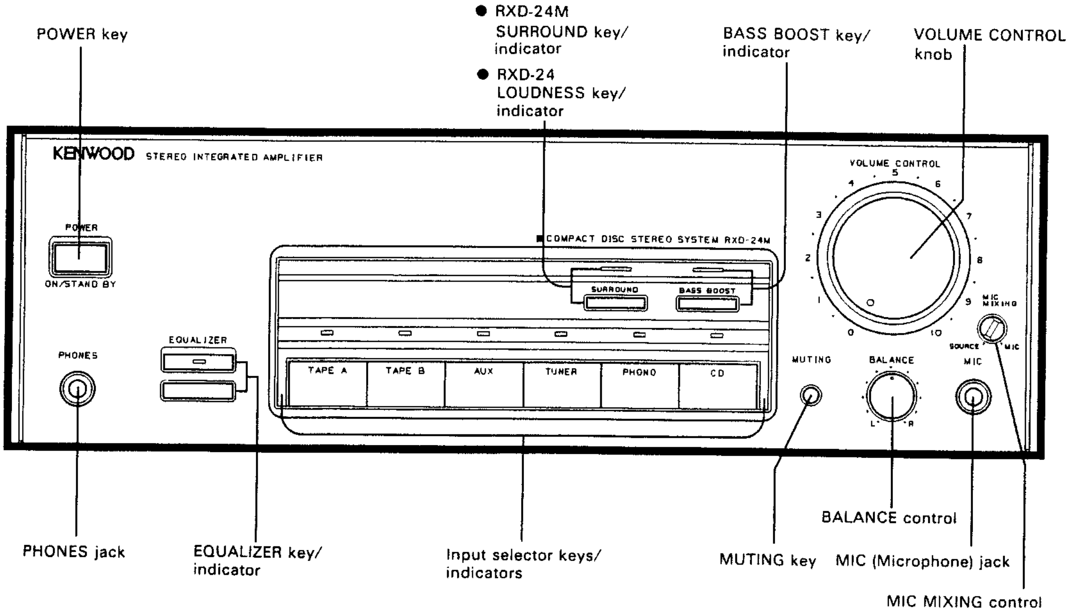
# Controls and indicators

## Tuner



Numeric keys (1 to 0/10)
TUNING keys
DOWN key
UP key
KENWOOD FM/AM STEREO SYNTHESIZER TUNER
1
2
3
4
5
6
7
8
9
0/10
ADJUST
PROG.1
PROG.2
EXE.1⇄2
ENTER
REMOTE SENSOR
DOWN
TUNING
UP
BAND
SLEEP
AUTO
P.SCAN
ENTER key
EXE. (Execute)
1 ⇄ 2 key
Remote control light sensor
ADJUST key
PROG. (Program) keys { PROG. 1 key / PROG. 2 key
BAND key
● RXD-24M: FM, AM
● RXD-24: FM, MW, LW
P.SCAN
(Preset Scan) key
AUTO key
SLEEP key

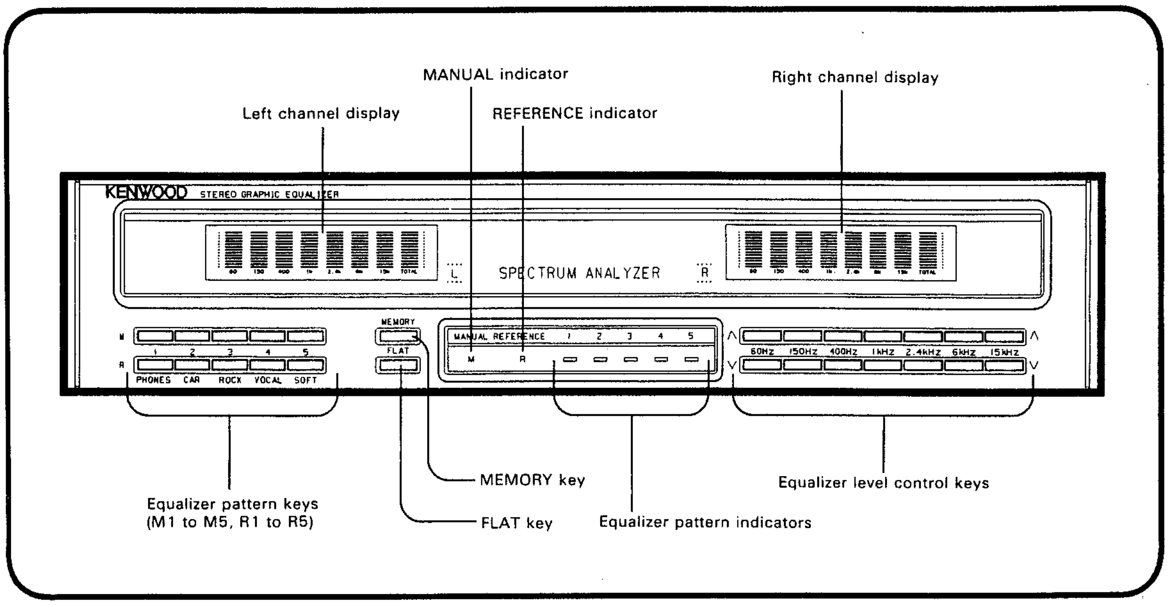
## Amplifier



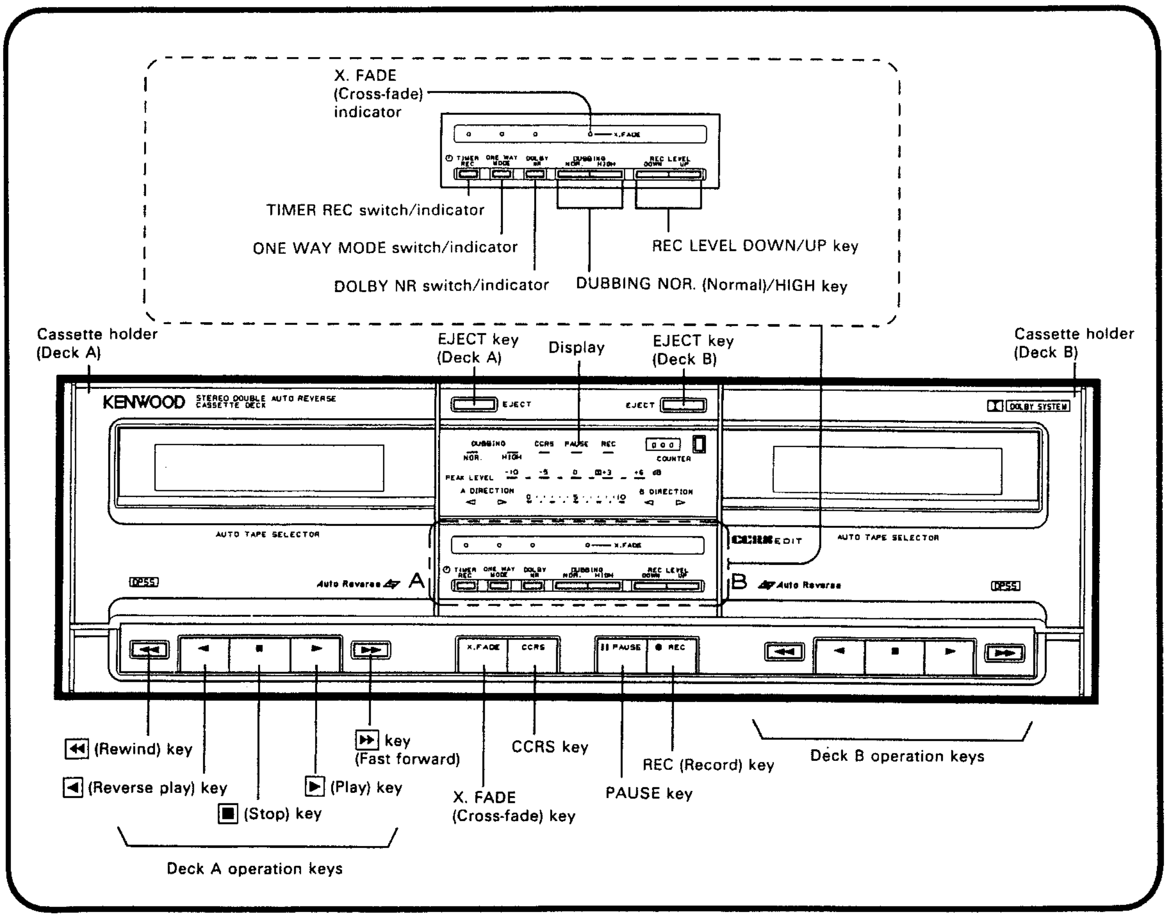
POWER key
● RXD-24M
SURROUND key/
indicator
● RXD-24
LOUDNESS key/
indicator
BASS BOOST key/
indicator
VOLUME CONTROL
knob
KENWOOD STEREO INTEGRATED AMPLIFIER
POWER
ON/STAND BY
COMPACT DISC STEREO SYSTEM RXD-24M
SURROUND
BASS BOOST
VOLUME CONTROL
0
1
2
3
4
5
6
7
8
9
10
MIC MIXING
SOURCE
MIC
PHONES
EQUALIZER
TAPE A
TAPE B
AUX
TUNER
PHONO
CD
MUTING
BALANCE
L
R
MIC
PHONES jack
EQUALIZER key/
indicator
Input selector keys/
indicators
BALANCE control
MUTING key
MIC (Microphone) jack
MIC MIXING control

## Controls and indicators

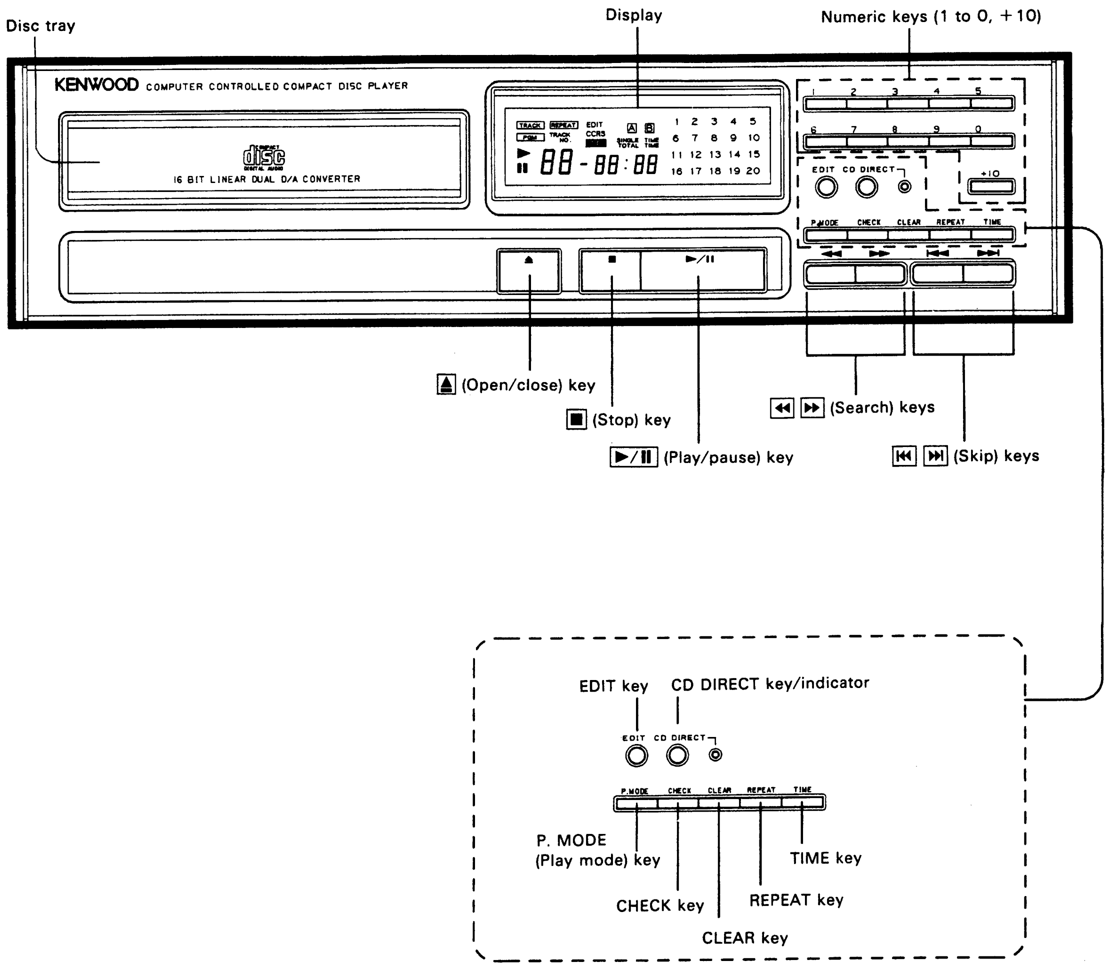
### Graphic equalizer


MANUAL indicator
Right channel display
Left channel display
REFERENCE indicator
KENWOOD STEREO GRAPHIC EQUALIZER
SPECTRUM ANALYZER
L
R
MEMORY
FLAT
MANUAL REFERENCE 1 2 3 4 5
M
R
PHONES CAR ROCK VOCAL SOFT
60Hz 150Hz 400Hz 1kHz 2.4kHz 6kHz 15kHz
MEMORY key
Equalizer level control keys
Equalizer pattern keys (M1 to M5, R1 to R5)
FLAT key
Equalizer pattern indicators

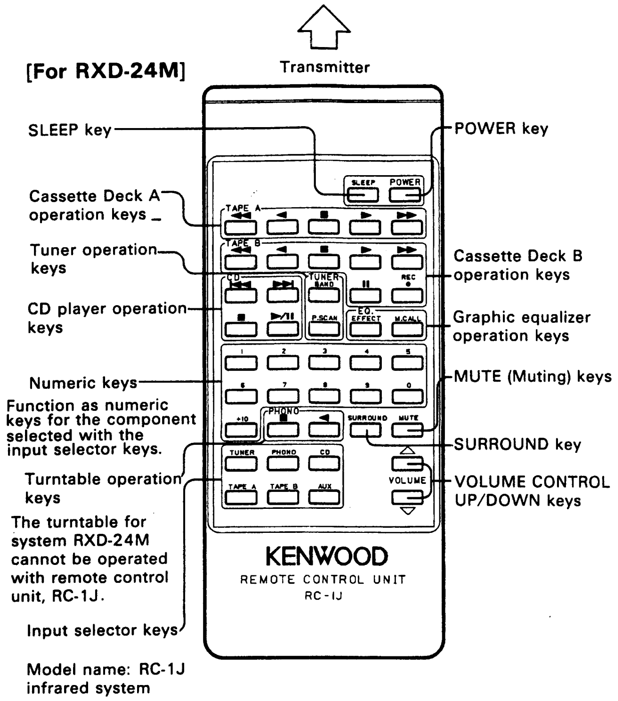
### Cassette deck


X. FADE (Cross-fade) indicator
TIMER REC switch/indicator
ONE WAY MODE switch/indicator
DOLBY NR switch/indicator
REC LEVEL DOWN/UP key
DUBBING NOR. (Normal)/HIGH key
Cassette holder (Deck A)
EJECT key (Deck A)
Display
EJECT key (Deck B)
Cassette holder (Deck B)
KENWOOD STEREO DOUBLE CASSETTE DECK AUTO REVERSE
EJECT
DUBBING NOR. HIGH
CCRS PAUSE REC
COUNTER
PEAK LEVEL
A DIRECTION
B DIRECTION
AUTO TAPE SELECTOR
CCRS EDIT
Auto Reverse A
B Auto Reverse
X.FADE
CCRS
PAUSE
REC
◀◀ (Rewind) key
◀ (Reverse play) key
■ (Stop) key
▶ (Play) key
▶▶ key (Fast forward)
CCRS key
X. FADE (Cross-fade) key
REC (Record) key
PAUSE key
Deck B operation keys
Deck A operation keys

**CD player**

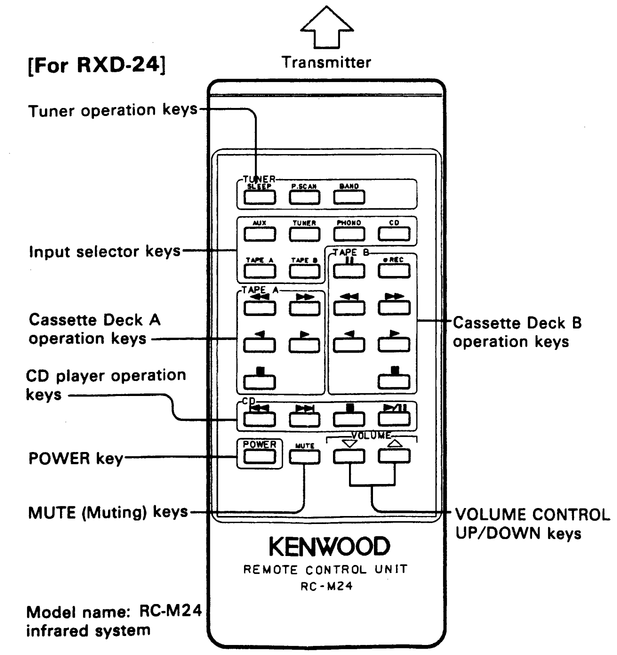

Disc tray
Display
Numeric keys (1 to 0, +10)
KENWOOD COMPUTER CONTROLLED COMPACT DISC PLAYER
16 BIT LINEAR DUAL D/A CONVERTER
▲ (Open/close) key
■ (Stop) key
▶/II (Play/pause) key
◀◀ ▶▶ (Search) keys
I◀◀ ▶▶I (Skip) keys
EDIT key
CD DIRECT key/indicator
P. MODE (Play mode) key
CHECK key
CLEAR key
REPEAT key
TIME key

**[For RXD-24M]**


Transmitter
SLEEP key
POWER key
Cassette Deck A operation keys
Tuner operation keys
Cassette Deck B operation keys
CD player operation keys
Graphic equalizer operation keys
Numeric keys
Function as numeric keys for the component selected with the input selector keys.
MUTE (Muting) keys
SURROUND key
Turntable operation keys
The turntable for system RXD-24M cannot be operated with remote control unit, RC-1J.
VOLUME CONTROL UP/DOWN keys
Input selector keys
KENWOOD
REMOTE CONTROL UNIT
RC-1J

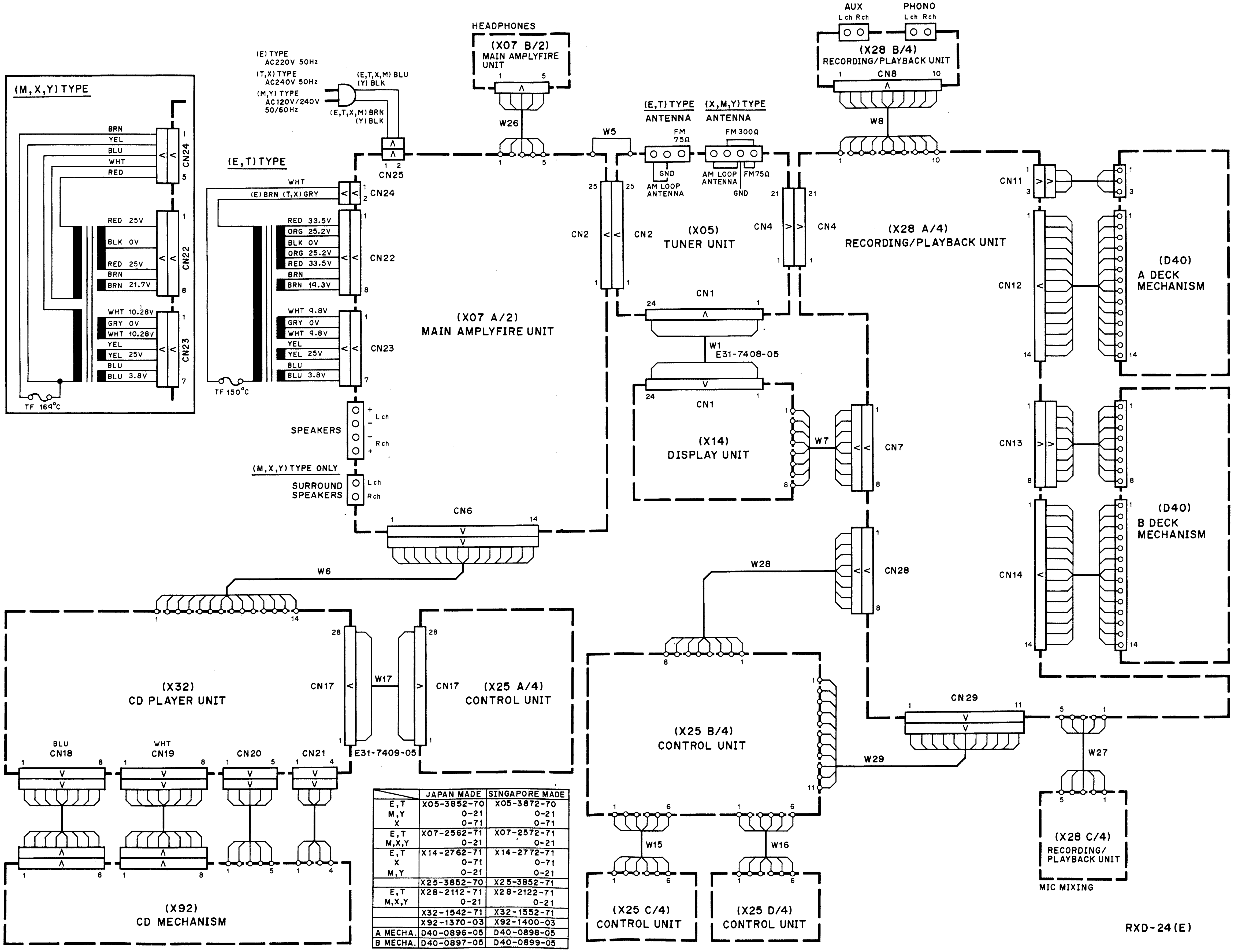
Model name: RC-1J infrared system

**[For RXD-24]**


Transmitter
Tuner operation keys
Input selector keys
Cassette Deck A operation keys
Cassette Deck B operation keys
CD player operation keys
POWER key
MUTE (Muting) keys
VOLUME CONTROL UP/DOWN keys
KENWOOD
REMOTE CONTROL UNIT
RC-M24

Model name: RC-M24 infrared system

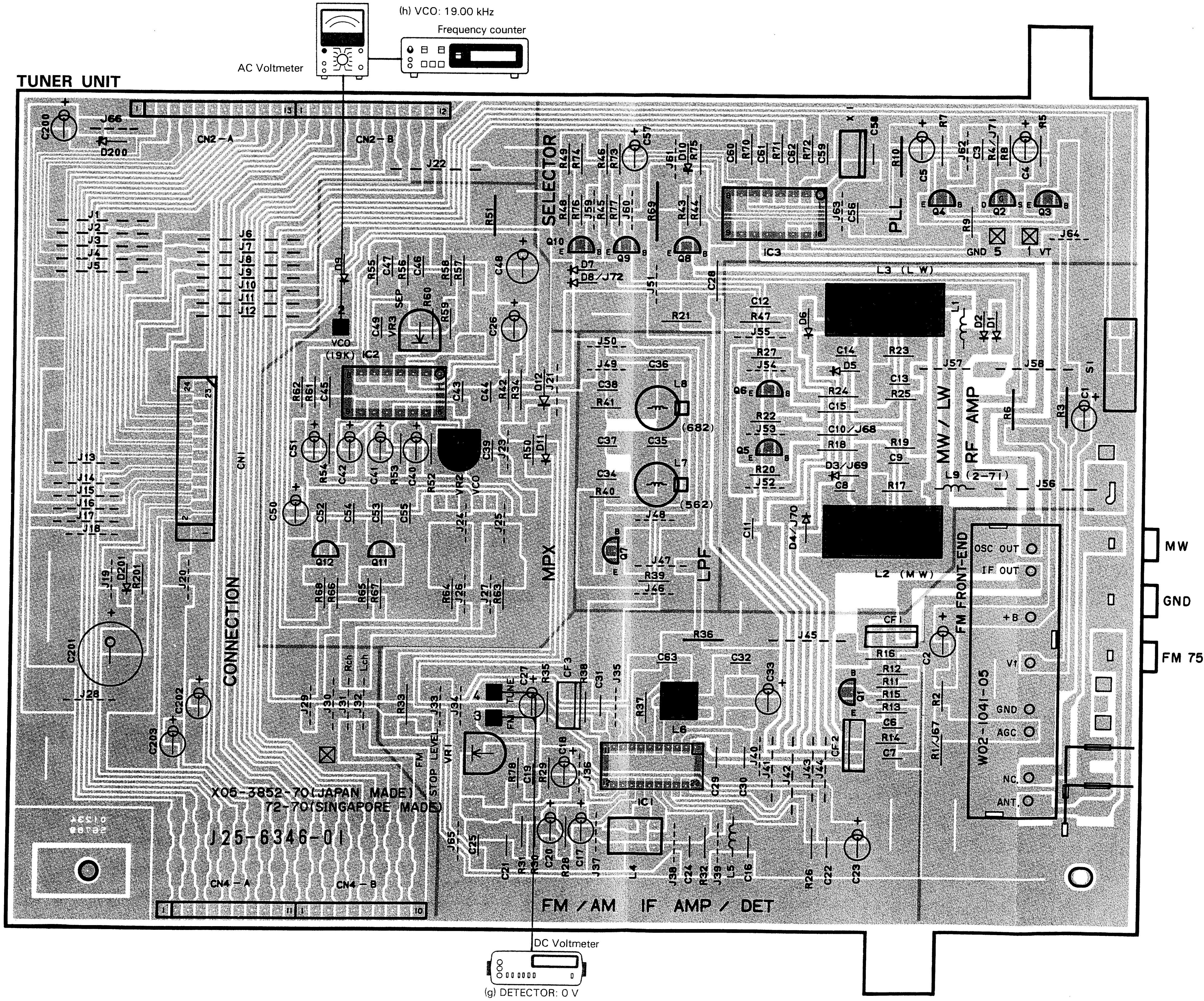
# WIRING DIAGRAM


(M,X,Y) TYPE
BRN
YEL
BLU
WHT
RED
CN24
RED 25V
BLK 0V
RED 25V
BRN
BRN 21.7V
CN22
WHT 10.28V
GRY 0V
WHT 10.28V
YEL
YEL 25V
BLU
BLU 3.8V
CN23
TF 169°C
(E) TYPE AC220V 50Hz
(T,X) TYPE AC240V 50Hz
(M,Y) TYPE AC120V/240V 50/60Hz
(E,T,X,M) BLU
(Y) BLK
(E,T,X,M) BRN
(Y) BLK
CN25
(E,T) TYPE
WHT
(E) BRN (T,X) GRY
CN24
RED 33.5V
ORG 25.2V
BLK 0V
ORG 25.2V
RED 33.5V
BRN
BRN 19.3V
CN22
WHT 9.8V
GRY 0V
WHT 9.8V
YEL
YEL 25V
BLU
BLU 3.8V
CN23
TF 150°C
SPEAKERS
Lch
Rch
(M,X,Y) TYPE ONLY
SURROUND SPEAKERS
HEADPHONES
(X07 B/2)
MAIN AMPLYFIRE UNIT
W26
(X07 A/2)
MAIN AMPLYFIRE UNIT
CN6
W6
W5
(E,T) TYPE ANTENNA
(X,M,Y) TYPE ANTENNA
FM 75Ω
FM 300Ω
GND
AM LOOP ANTENNA
FM 75Ω
CN2
(X05)
TUNER UNIT
CN4
CN1
W1
E31-7408-05
(X14)
DISPLAY UNIT
W7
CN7
AUX
PHONO
Lch Rch
(X28 B/4)
RECORDING/PLAYBACK UNIT
CN8
W8
(X28 A/4)
RECORDING/PLAYBACK UNIT
CN11
CN12
CN13
CN14
(D40)
A DECK MECHANISM
(D40)
B DECK MECHANISM
CN28
W28
CN29
W29
W27
(X28 C/4)
RECORDING/PLAYBACK UNIT
MIC MIXING
(X25 B/4)
CONTROL UNIT
W15
W16
(X25 C/4)
CONTROL UNIT
(X25 D/4)
CONTROL UNIT
(X32)
CD PLAYER UNIT
CN17
W17
E31-7409-05
(X25 A/4)
CONTROL UNIT
BLU
CN18
WHT
CN19
CN20
CN21
(X92)
CD MECHANISM
RXD-24(E)

| | JAPAN MADE | SINGAPORE MADE |
|---|---|---|
| E,T<br>M,Y<br>X | X05-3852-70<br>0-21<br>0-71 | X05-3872-70<br>0-21<br>0-71 |
| E,T<br>M,X,Y | X07-2562-71<br>0-21 | X07-2572-71<br>0-21 |
| E,T<br>X<br>M,Y | X14-2762-71<br>0-71<br>0-21 | X14-2772-71<br>0-71<br>0-21 |
| | X25-3852-70 | X25-3852-71 |
| E,T<br>M,X,Y | X28-2112-71<br>0-21 | X28-2122-71<br>0-21 |
| | X32-1542-71 | X32-1552-71 |
| | X92-1370-03 | X92-1400-03 |
| A MECHA. | D40-0896-05 | D40-0898-05 |
| B MECHA. | D40-0897-05 | D40-0899-05 |

# PC BOARD (Component Side View)

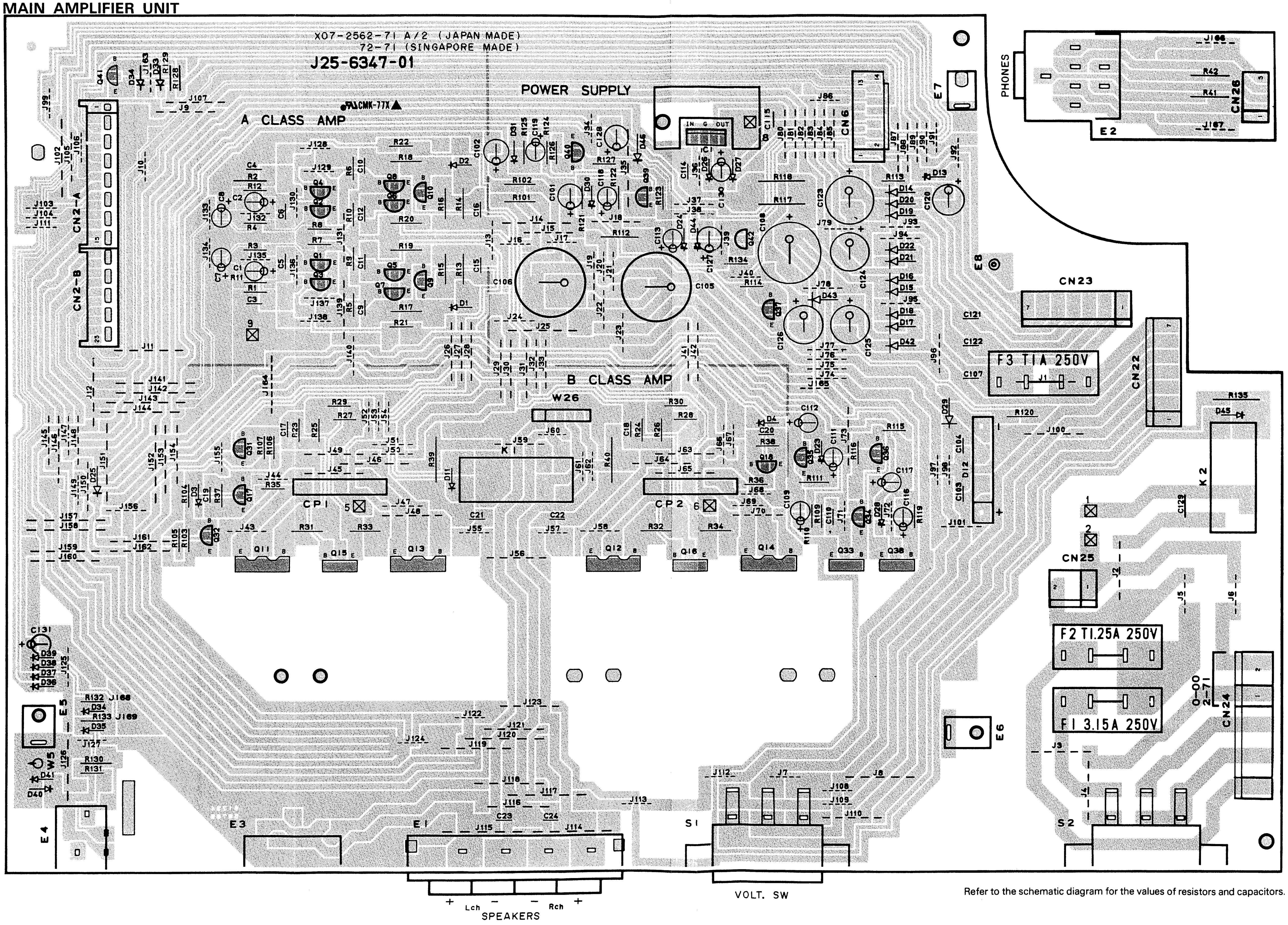
| Ref. No. |  | Address |
|---|---|---|
| IC | Q |  |
|  | 1 | 5G |
|  | 2 | 2H |
|  | 3 | 2H |
|  | 4 | 2G |
|  | 5 | 4F |
|  | 6 | 3F |
|  | 7 | 4E |
|  | 8 | 2F |
|  | 9 | 2E |
|  | 10 | 2E |
|  | 11 | 4D |
|  | 12 | 4D |
| 1 |  | 6F |
| 2 |  | 3D |
| 3 |  | 2F |


(h) VCO: 19.00 kHz
Frequency counter
AC Voltmeter
TUNER UNIT
CN2-A
CN2-B
SELECTOR
PLL
IC3
L3 (L W)
GND 5
VT
VCO (19K)
IC2
MW / LW RF AMP
L9 (2-71)
L8 (682)
L7 (562)
MPX
LPF
CONNECTION
CN1
L2 (M W)
FM FRONT-END
OSC OUT
IF OUT
+B
Vt
GND
AGC
NC
ANT
W02-1041-05
MW
GND
FM 75Ω
CF1
CF2
CF3
IC1
L6
L4
L5
TUNE
FM
STOP LEVEL
VR1
VR2
VR3
SEP
X05-3852-70(JAPAN MADE)
72-70(SINGAPORE MADE)
J25-6346-01
CN4-A
CN4-B
FM / AM IF AMP / DET
DC Voltmeter
(g) DETECTOR: 0 V

Refer to the schematic diagram for the values of resistors and capacitors.

# PC BOARD (Component Side View)

## MAIN AMPLIFIER UNIT

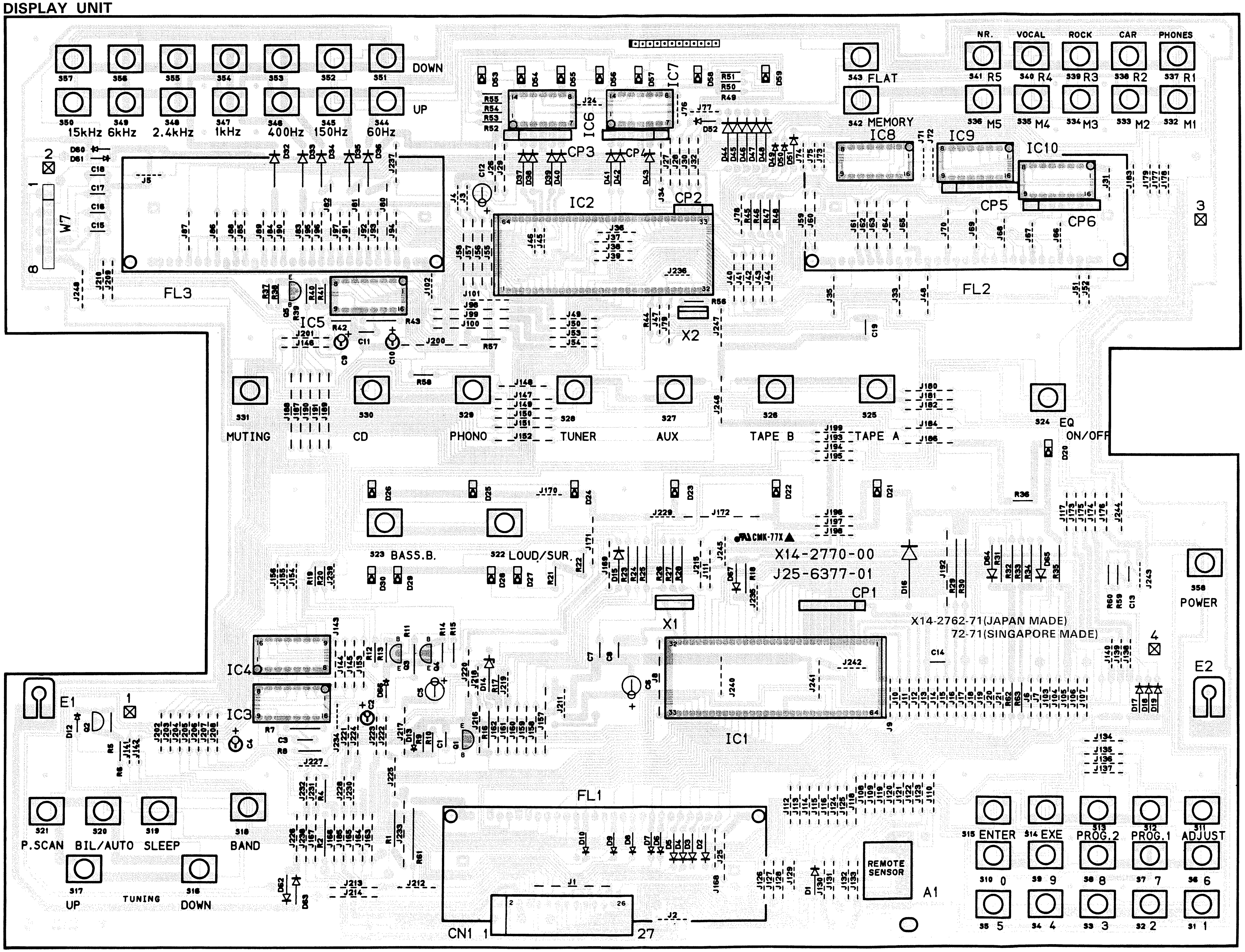

K
L
M
N
O
P
Q
R
S
T
1
2
3
4
5
6
7
X07-2562-71 A/2 (JAPAN MADE)
72-71 (SINGAPORE MADE)
J25-6347-01
POWER SUPPLY
A CLASS AMP
B CLASS AMP
CMK-77X
PHONES
CN2-A
CN2-B
CN6
CN22
CN23
CN24
CN25
CN26
F3 T1A 250V
F2 T1.25A 250V
F1 3.15A 250V
CP1
CP2
K1
K2
W26
IC1
E1
E2
E3
E4
E5
E6
E7
E8
S1
S2
VOLT. SW
+ Lch − − Rch +
SPEAKERS

| Ref. No. IC | Ref. No. Q | Address |
|---|---|---|
| | 1 | 3M |
| | 2 | 2M |
| | 3 | 3M |
| | 4 | 2M |
| | 5 | 3N |
| | 6 | 2N |
| | 7 | 3N |
| | 8 | 2N |
| | 9 | 3N |
| | 10 | 2N |
| | 11 | 5M |
| | 12 | 5O |
| | 13 | 5N |
| | 14 | 5P |
| | 15 | 5M |
| | 16 | 5P |
| | 17 | 4M |
| | 18 | 4P |
| | 31 | 4M |
| | 32 | 4M |
| | 33 | 5Q |
| | 34 | 4Q |
| | 35 | 4P |
| | 36 | 4Q |
| | 37 | 3P |
| | 38 | 5Q |
| | 39 | 2O |
| | 40 | 2O |
| | 41 | 1L |
| | 42 | 3P |
| 1 | | 2P |

Refer to the schematic diagram for the values of resistors and capacitors.

# PC BOARD (Component Side View)

## DISPLAY UNIT

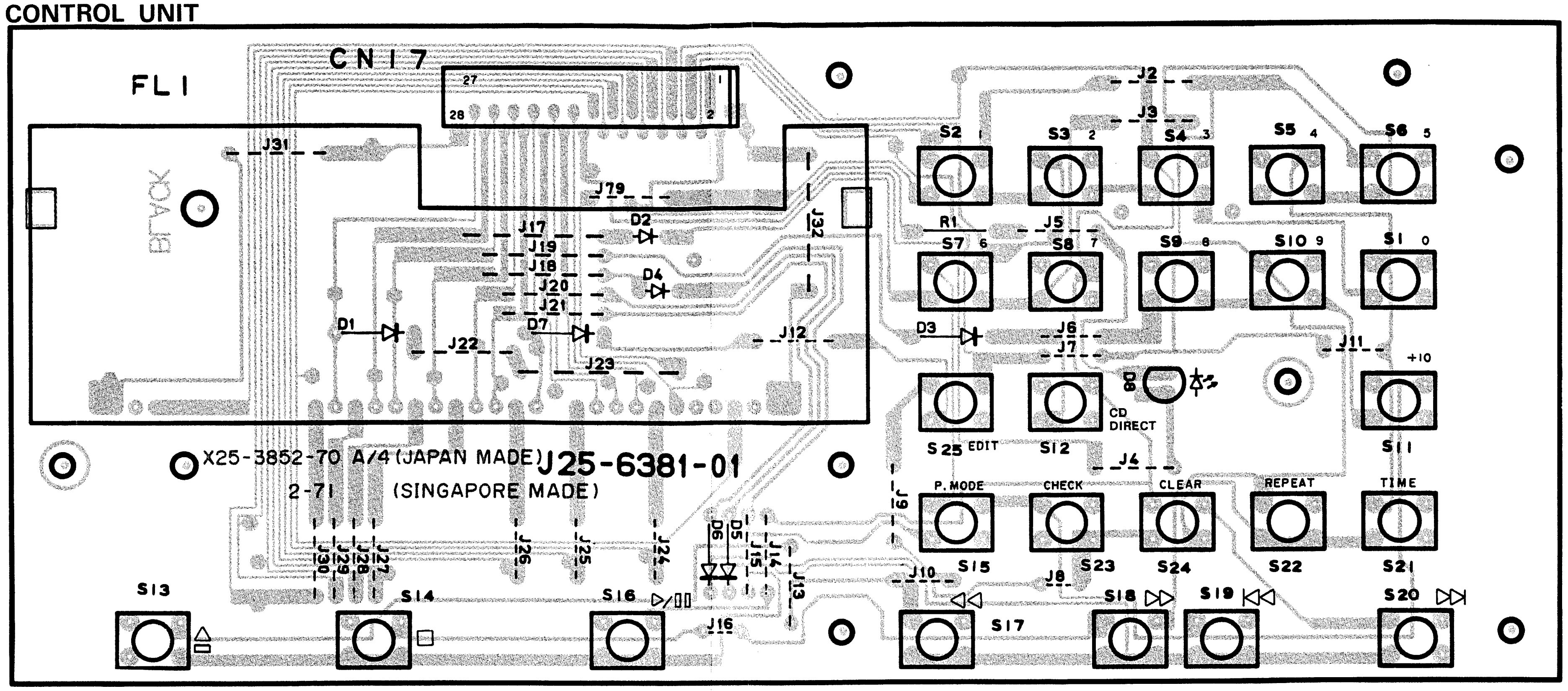

U
V
W
X
Y
Z
AA
AB
AC
AD
1
2
3
4
5
6
7
DOWN
UP
15kHz
6kHz
2.4kHz
1kHz
400Hz
150Hz
60Hz
W7
FL3
IC5
IC6
IC7
CP3
CP4
IC2
CP2
X2
NR.
VOCAL
ROCK
CAR
PHONES
FLAT
MEMORY
R5
R4
R3
R2
R1
M5
M4
M3
M2
M1
IC8
IC9
IC10
CP5
CP6
FL2
MUTING
CD
PHONO
TUNER
AUX
TAPE B
TAPE A
EQ ON/OFF
BASS.B.
LOUD/SUR.
X14-2770-00
J25-6377-01
CMK-77X
CP1
X1
X14-2762-71(JAPAN MADE)
72-71(SINGAPORE MADE)
POWER
IC4
IC3
IC1
E1
E2
P.SCAN
BIL/AUTO
SLEEP
BAND
UP
TUNING
DOWN
FL1
CN1
1
27
REMOTE SENSOR
A1
ENTER
EXE
PROG.2
PROG.1
ADJUST
0
9
8
7
6
5
4
3
2
1

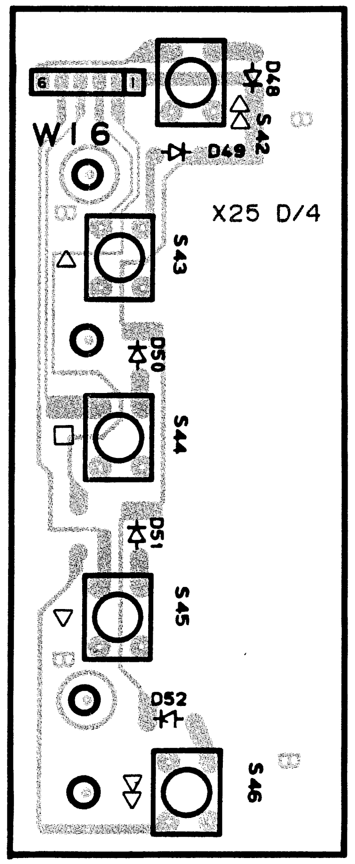
| Ref. No. | | Address |
|---|---|---|
| IC | Q | |
| | 1 | 6X |
| | 2 | 6V |
| | 3 | 5X |
| | 4 | 5X |
| | 5 | 3W |
| 1 | | 5Z |
| 2 | | 2Y |
| 3 | | 5W |
| 4 | | 5W |
| 5 | | 3W |
| 6 | | 2Y |
| 7 | | 2Y |
| 8 | | 2AA |
| 9 | | 2AA |
| 10 | | 2AB |

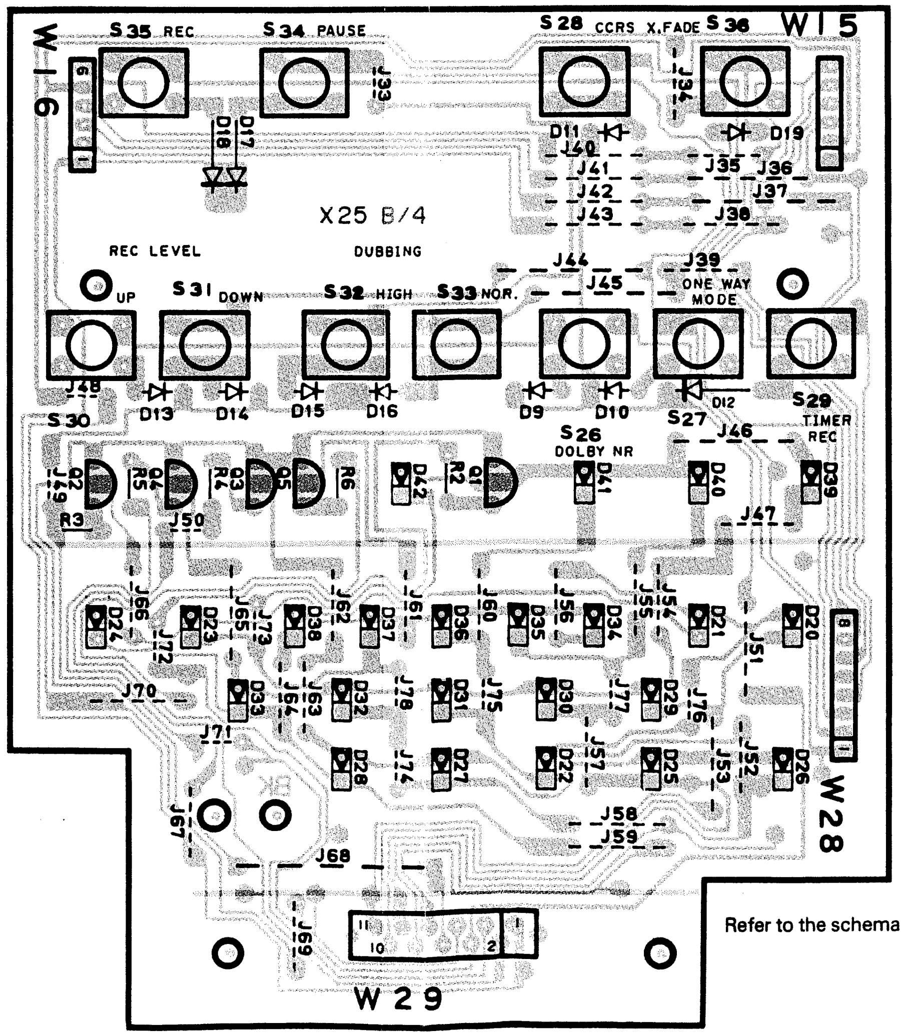
Refer to the schematic diagram for the values of resistors and capacitors.

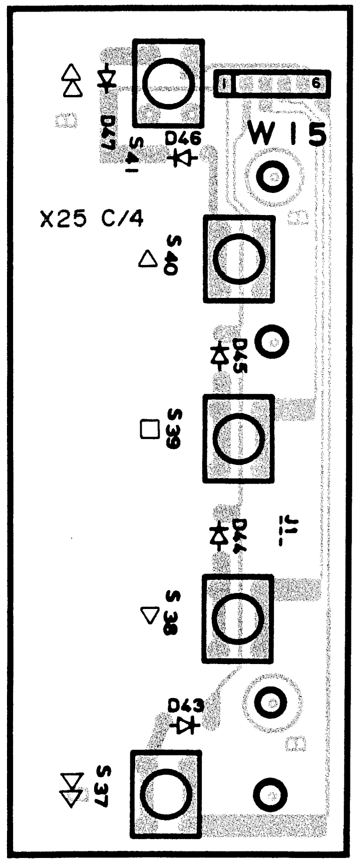
# PC BOARD (Component Side View)

## CONTROL UNIT


CN17
FL1
X25-3852-70 A/4 (JAPAN MADE)
2-71 (SINGAPORE MADE)
J25-6381-01
S2
S3 2
S4 3
S5 4
S6 5
S7 6
S8 7
S9 8
S10 9
S1 0
+10
S11
CD DIRECT
S25 EDIT
S12
P.MODE
CHECK
CLEAR
REPEAT
TIME
S15
S23
S24
S22
S21
S13
S14
S16
S17
S18
S19
S20
D1
D2
D3
D4
D5
D6
D7
D8
R1


W16
X25 D/4
S42
S43
S44
S45
S46
D48
D49
D50
D51
D52


W16
W15
W28
W29
X25 B/4
S35 REC
S34 PAUSE
S28 CCRS
X.FADE S36
REC LEVEL
UP
S31 DOWN
DUBBING
S32 HIGH
S33 NOR.
ONE WAY MODE
S30
S26 DOLBY NR
S27
S29 TIMER REC
Q1
Q2
Q3
Q4
Q5
R2
R3
R4
R5
R6

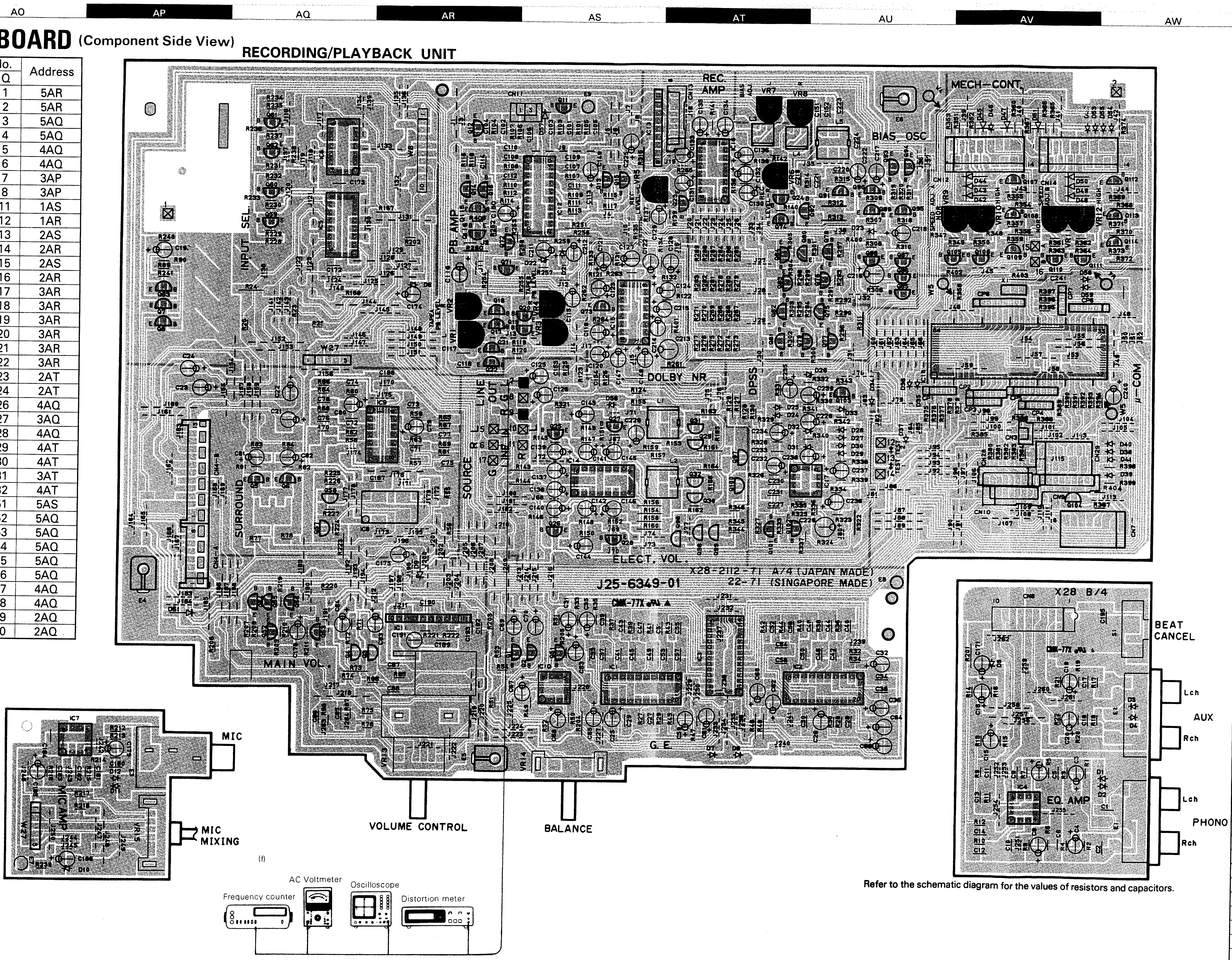

W15
X25 C/4
S41
S40
S39
S38
S37
D43
D44
D45
D46
D47

Refer to the schematic diagram for the values of resistors and capacitors.

# PC BOARD (Component Side View)

| Ref. No. | | Address |
|---|---|---|
| IC | Q | |
| | 1 | 5AR |
| | 2 | 5AR |
| | 3 | 5AQ |
| | 4 | 5AQ |
| | 5 | 4AQ |
| | 6 | 4AQ |
| | 7 | 3AP |
| | 8 | 3AP |
| | 11 | 1AS |
| | 12 | 1AR |
| | 13 | 2AS |
| | 14 | 2AR |
| | 15 | 2AS |
| | 16 | 2AR |
| | 17 | 3AR |
| | 18 | 3AR |
| | 19 | 3AR |
| | 20 | 3AR |
| | 21 | 3AR |
| | 22 | 3AR |
| | 23 | 2AT |
| | 24 | 2AT |
| | 26 | 4AQ |
| | 27 | 3AQ |
| | 28 | 4AQ |
| | 29 | 4AT |
| | 30 | 4AT |
| | 31 | 3AT |
| | 32 | 4AT |
| | 51 | 5AS |
| | 52 | 5AQ |
| | 53 | 5AQ |
| | 54 | 5AQ |
| | 55 | 5AQ |
| | 56 | 5AQ |
| | 57 | 4AQ |
| | 58 | 4AQ |
| | 59 | 2AQ |
| | 60 | 2AQ |

## RECORDING/PLAYBACK UNIT


AO
AP
AQ
AR
AS
AT
AU
AV
AW
AX
1
2
3
4
5
6
7
REC. AMP
BIAS OSC
MECH-CONT
INPUT SEL.
PB. AMP
DOLBY NR
DPSS
µ-COM
LINE OUT
SOURCE
SURROUND
ELECT. VOL.
MAIN VOL.
G.E.
X28-2112-71 A/4 (JAPAN MADE)
22-71 (SINGAPORE MADE)
J25-6349-01
VOLUME CONTROL
BALANCE
MIC
MIC MIXING
MIC AMP
IC7
X28 B/4
BEAT CANCEL
Lch
AUX
Rch
Lch
PHONO
Rch
EQ. AMP
(f)
Frequency counter
AC Voltmeter
Oscilloscope
Distortion meter

Refer to the schematic diagram for the values of resistors and capacitors.

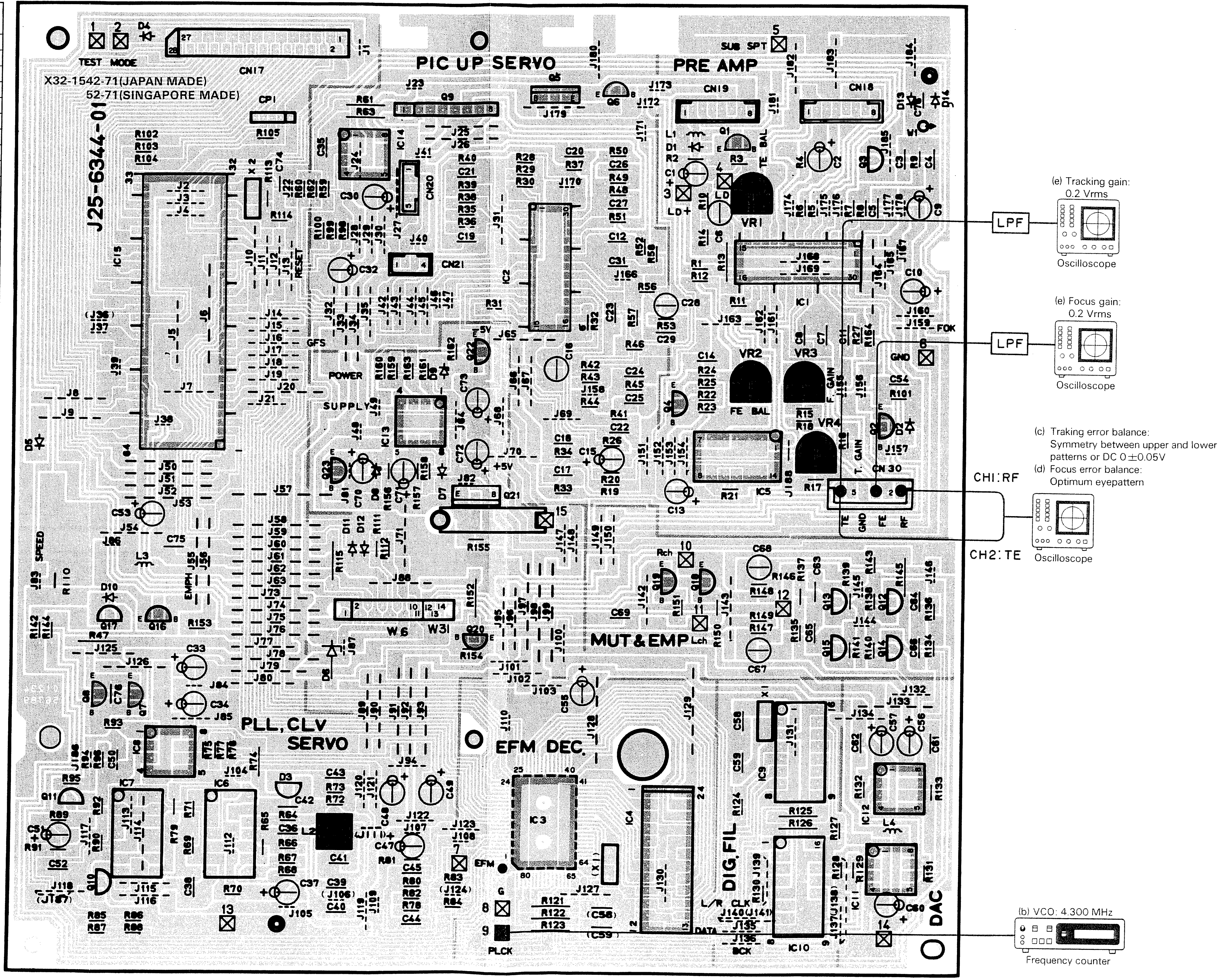
| Ref. No. | | Address |
|---|---|---|
| IC | Q | |
| | 61 | 1AQ |
| | 62 | 2AQ |
| | 63 | 3AP |
| | 71 | 2AP |
| | 72 | 2AR |
| | 73 | 3AS |
| | 74 | 2AT |
| | 79 | 3AT |
| | 80 | 2AT |
| | 81 | 3AT |
| | 82 | 3AT |
| | 83 | 2AT |
| | 84 | 2AT |
| | 85 | 3AU |
| | 86 | 2AU |
| | 87 | 2AU |
| | 88 | 2AU |
| | 89 | 2AU |
| | 90 | 2AU |
| | 91 | 2AU |
| | 92 | 2AT |
| | 93 | 2AU |
| | 94 | 2AU |
| | 95 | 2AU |
| | 96 | 4AT |
| | 97 | 4AT |
| | 98 | 4AT |
| | 99 | 4AT |
| | 100 | 4AT |
| | 101 | 4AT |
| | 102 | 4AT |
| | 103 | 4AV |
| | 104 | 2AV |
| | 105 | 2AV |
| | 106 | 2AV |
| | 107 | 2AV |
| | 108 | 2AV |
| | 109 | 2AV |
| | 110 | 2AV |
| | 111 | 2AV |
| | 112 | 2AW |
| | 113 | 2AW |
| | 114 | 2AW |
| | 115 | 2AR |
| | 116 | 2AR |
| 1 | | 5AS |
| 2 | | 5AT |
| 3 | | 5AT |
| 4 | | 6AW |
| 5 | | 2AQ |
| 6 | | 1AQ |
| 7 | | 6AM |
| 8 | | 4AQ |
| 9 | | 4AQ |
| 10 | | 5AS |
| 11 | | 5AR |
| 12 | | 2AS |
| 13 | | 1AS |
| 14 | | 4AS |
| 15 | | 3AS |
| 16 | | 1AT |
| 17 | | 4AT |
| 18 | | 3AV |

AY AZ BA BB BC BD BE BF BG BH

# PC BOARD (Component Side View)

| Ref. No. IC | Ref. No. Q | Address |
|---|---|---|
| | 1 | 1BE |
| | 2 | 4BF |
| | 3 | 2BF |
| | 4 | 3BE |
| | 5 | 3BE |
| | 6 | 1BD |
| | 7 | 5BA |
| | 8 | 5BA |
| | 9 | 2BC |
| | 10 | 6BA |
| | 11 | 6BA |
| | 12 | 4BF |
| | 13 | 4BE |
| | 14 | 4BF |
| | 15 | 4BE |
| | 16 | 5BA |
| | 17 | 5BA |
| | 18 | 5BE |
| | 19 | 5BD |
| | 20 | 5BC |
| | 21 | 4BC |
| | 22 | 3BC |
| | 23 | 4BB |
| 1 | | 2BE |
| 2 | | 2BD |
| 3 | | 6BD |
| 4 | | 6BD |
| 5 | | 4BE |
| 6 | | 6BB |
| 7 | | 5BA |
| 8 | | 5BA |
| 9 | | 5BE |
| 10 | | 6BE |
| 11 | | 6BF |
| 12 | | 5BF |
| 13 | | 3BC |
| 14 | | 2BC |

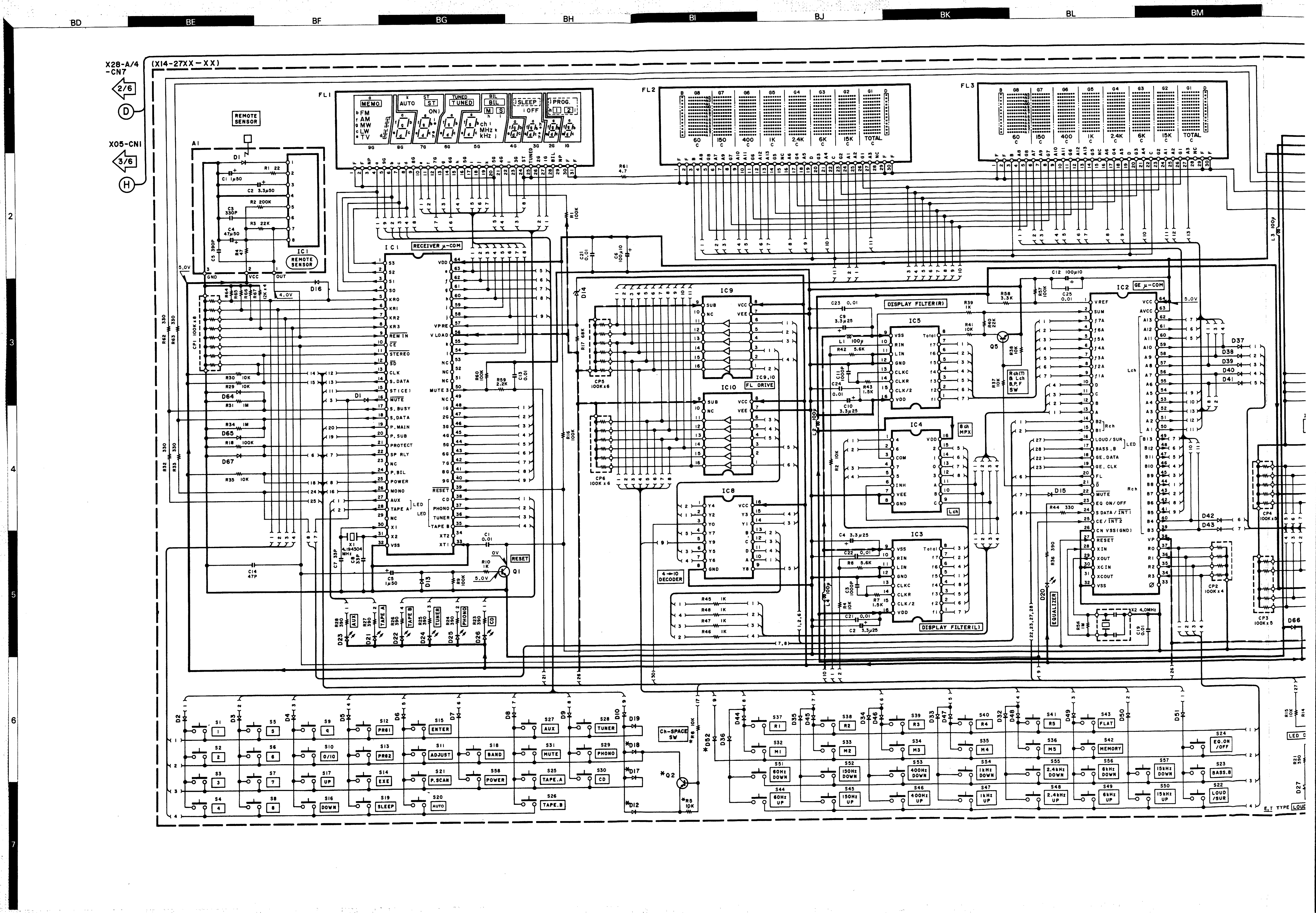
## CD PLAYER UNIT

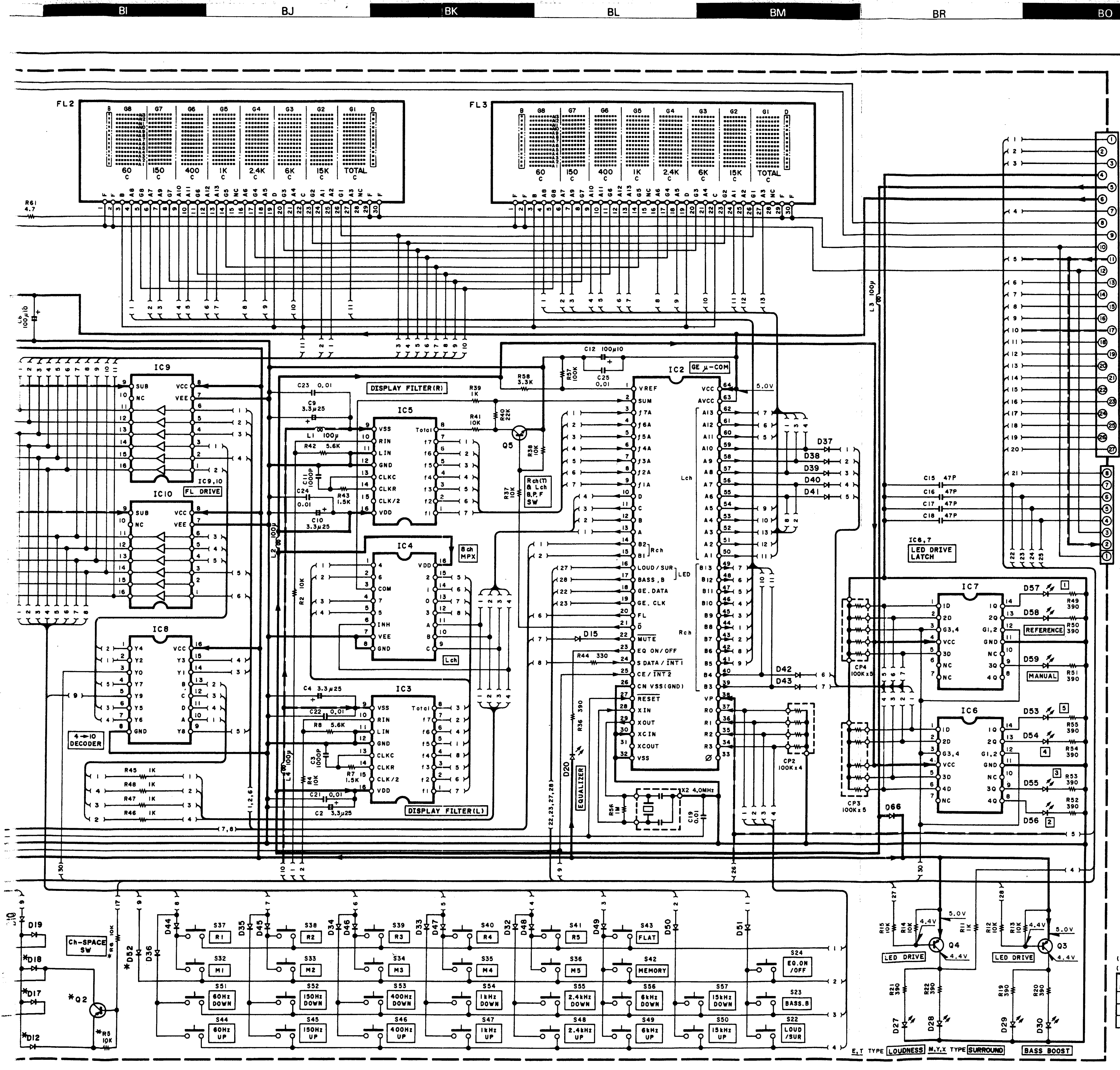


TEST MODE
X32-1542-71(JAPAN MADE)
52-71(SINGAPORE MADE)
J25-6344-01
PIC UP SERVO
PRE AMP
SUB SPT
POWER SUPPLY
PLL, CLV SERVO
EFM DEC.
MUT & EMP
DIG. FIL
DAC
FE BAL
TE BAL
F. GAIN
T. GAIN
EFM
PLCK
SPEED
EMPH
GFS
RESET
FOK
CN30
TE GND FE RF
(e) Tracking gain: 0.2 Vrms
(e) Focus gain: 0.2 Vrms
LPF
Oscilloscope
(c) Traking error balance: Symmetry between upper and lower patterns or DC 0±0.05V
(d) Focus error balance: Optimum eyepattern
CH1: RF
CH2: TE
(b) VCO: 4.300 MHz
Frequency counter

Refer to the schematic diagram for the values of resistors and capacitors.

1 2 3 4 5 6 7


BD
BE
BF
BG
BH
BI
BJ
BK
BL
BM
1
2
3
4
5
6
7
X28-A/4 -CN7
(X14-27XX-XX)
2/6
D
X05-CN1
3/6
H
REMOTE SENSOR
A1
IC1 REMOTE SENSOR
FL1
MEMO.
AUTO
ST
TUNED
BIL
SLEEP
PROG.
FM
AM
MW
LW
TV
ON
OFF
MHz
kHz
FL2
FL3
60
150
400
1K
2.4K
6K
15K
TOTAL
IC1 RECEIVER μ-COM
S3
S2
S1
S0
KR0
KR1
KR2
KR3
REM IN
CE
STEREO
SD
CLK
S.DATA
ST(CE)
MUTE
S.BUSY
S.DATA
P.MAIN
P.SUB
SP RLY
PROTECT
P.BIL
POWER
MONO
AUX
TAPE A
NC
X1
X2
VSS
VDD
VPRE
V LOAD
MUTE
RESET
CD
PHONO
TUNER
TAPE B
XT2
XT1
LED
X1 4.194304 MHz
Q1
5.0V
0V
RESET
IC9
IC10
IC9,10 FL DRIVE
SUB
NC
VCC
VEE
CP5 100K x6
CP6 100K x6
IC8
4→10 DECODER
IC5
IC4
IC3
DISPLAY FILTER(R)
DISPLAY FILTER(L)
8ch MPX
Lch
Total
RIN
LIN
GND
CLKC
CLKR
CLK/2
COM
INH
Q5
Rch(T) & Lch B.P.F SW
IC2 GE μ-COM
VREF
SUM
f7A
f6A
f5A
f4A
f3A
f2A
f1A
Rch
LOUD/SUR
BASS.B
GE.DATA
GE.CLK
FL
MUTE
EQ ON/OFF
S DATA/INT1
CE/INT2
CN VSS(GND)
RESET
XIN
XOUT
XCIN
XCOUT
AVCC
EQUALIZER
X2 4.0MHz
CP1 100K x8
CP2 100K x4
CP3 100K x5
CP4 100K x5
AUX
TAPE A
TAPE B
TUNER
PHONO
CD
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10 0/10
S11 ADJUST
S12 PR01
S13 PR02
S14 EXE
S15 ENTER
S16 DOWN
S17 UP
S18 BAND
S19 SLEEP
S20 AUTO
S21 P.SCAN
S25 TAPE.A
S26 TAPE.B
S27 AUX
S28 TUNER
S29 PHONO
S30 CD
S31 MUTE
S58 POWER
Ch-SPACE SW
*Q2
S37 R1
S38 R2
S39 R3
S40 R4
S41 R5
S43 FLAT
S32 M1
S33 M2
S34 M3
S35 M4
S36 M5
S42 MEMORY
S24 EQ.ON/OFF
S23 BASS.B
S22 LOUD/SUR
S51 60Hz DOWN
S52 150Hz DOWN
S53 400Hz DOWN
S54 1kHz DOWN
S55 2.4kHz DOWN
S56 6kHz DOWN
S57 15kHz DOWN
S44 60Hz UP
S45 150Hz UP
S46 400Hz UP
S47 1kHz UP
S48 2.4kHz UP
S49 6kHz UP
S50 15kHz UP
E.T TYPE
LED


BI
BJ
BK
BL
BM
BR
BO
BP
BQ
BN
FL2
FL3
G8
G7
G6
G5
G4
G3
G2
G1
60
150
400
1K
2.4K
6K
15K
TOTAL
R61 4.7
IC9
IC10
IC9,10
FL DRIVE
IC8
4→10 DECODER
IC5
DISPLAY FILTER(R)
IC4
8ch MPX
Lch
IC3
DISPLAY FILTER(L)
Q5
Rch(T) & Lch B.P.F SW
IC2
GE μ-COM
VREF
SUM
LOUD/SUR
BASS,B
GE.DATA
GE.CLK
FL
MUTE
EQ ON/OFF
S DATA/INT1
CE/INT2
CN VSS(GND)
RESET
XIN
XOUT
XCIN
XCOUT
VSS
VCC
AVCC
5.0V
X2 4.0MHz
D15
D20
EQUALIZER
D37
D38
D39
D40
D41
D42
D43
CP1 100Kx4
CP2 100Kx4
CP3 100Kx5
CP4 100Kx5
IC6,7
LED DRIVE LATCH
IC7
IC6
D57
D58
REFERENCE
D59
MANUAL
D53
D54
D55
D56
D66
CN1
Rch
Lch
MUTE
D.GND
+5.6V
BACK UP +5V
SUR
S.BUSY
S.DATA
F.2
-26V
F.1
PROTECT
SP.RELAY
POWER
CE
-5.6V
PLL.CE
PLL.CLK
PLL.DATA
SD
STEREO
MONO
CH.EMPHA
BIL
SUB
MAIN
TUNER MUT
GE.DATA
GE.CLK
S.DATA
S.BUSY
F.1
-26V
F.2
W7
C15 47P
C16 47P
C17 47P
C18 47P
Q4
Q3
LED DRIVE
4.4V
D27
D28
D29
D30
E,T TYPE LOUDNESS
M,Y,X TYPE SURROUND
BASS BOOST
D19
D18
D17
D12
Q2
Ch-SPACE SW
S37 R1
S38 R2
S39 R3
S40 R4
S41 R5
S43 FLAT
S32 M1
S33 M2
S34 M3
S35 M4
S36 M5
S42 MEMORY
S24 EQ.ON/OFF
S51 60Hz DOWN
S52 150Hz DOWN
S53 400Hz DOWN
S54 1kHz DOWN
S55 2.4kHz DOWN
S56 6kHz DOWN
S57 15kHz DOWN
S23 BASS.B
S44 60Hz UP
S45 150Hz UP
S46 400Hz UP
S47 1kHz UP
S48 2.4kHz UP
S49 6kHz UP
S50 15kHz UP
S22 LOUD/SUR

**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

| | |
|---|---|
| IC1 | : μPD75208CW-A42 |
| IC2 | : M50940-187SP |
| IC3,5 | : XR-1091 |
| IC4 | : TC4051BP |
| IC6,7 | : TC74HC77AP |
| IC8 | : TC4028BP |
| IC9,10 | : LB1294 |
| Q1,5 | : 2SC945(A)(Q,P)<br>or 2SC1740S(Q,R) |
| Q2~4 | : 2SA733(A)(Q,P)<br>or 2SA933S(Q,R) |
| D1~10,12,13,15~19<br>32~52,64~67 | : HSS104A or 1SS131 |
| D14 | : RD8.2ES(B2)<br>or HZS8.2N(B2) |
| D20,53~59 | : B30-1223-05 |
| D21~30 | : B30-1012-05 |
| FL1 | : FIP10HM6 |
| FL2,3 | : CPF1096 |
| A1 | : W02-0975-05 |

——————— GND LINE

——————— +B LINE

— — — — — −B LINE

(X14-276X-XX) JAPAN MADE

(X14-277X-XX) SINGAPORE MADE

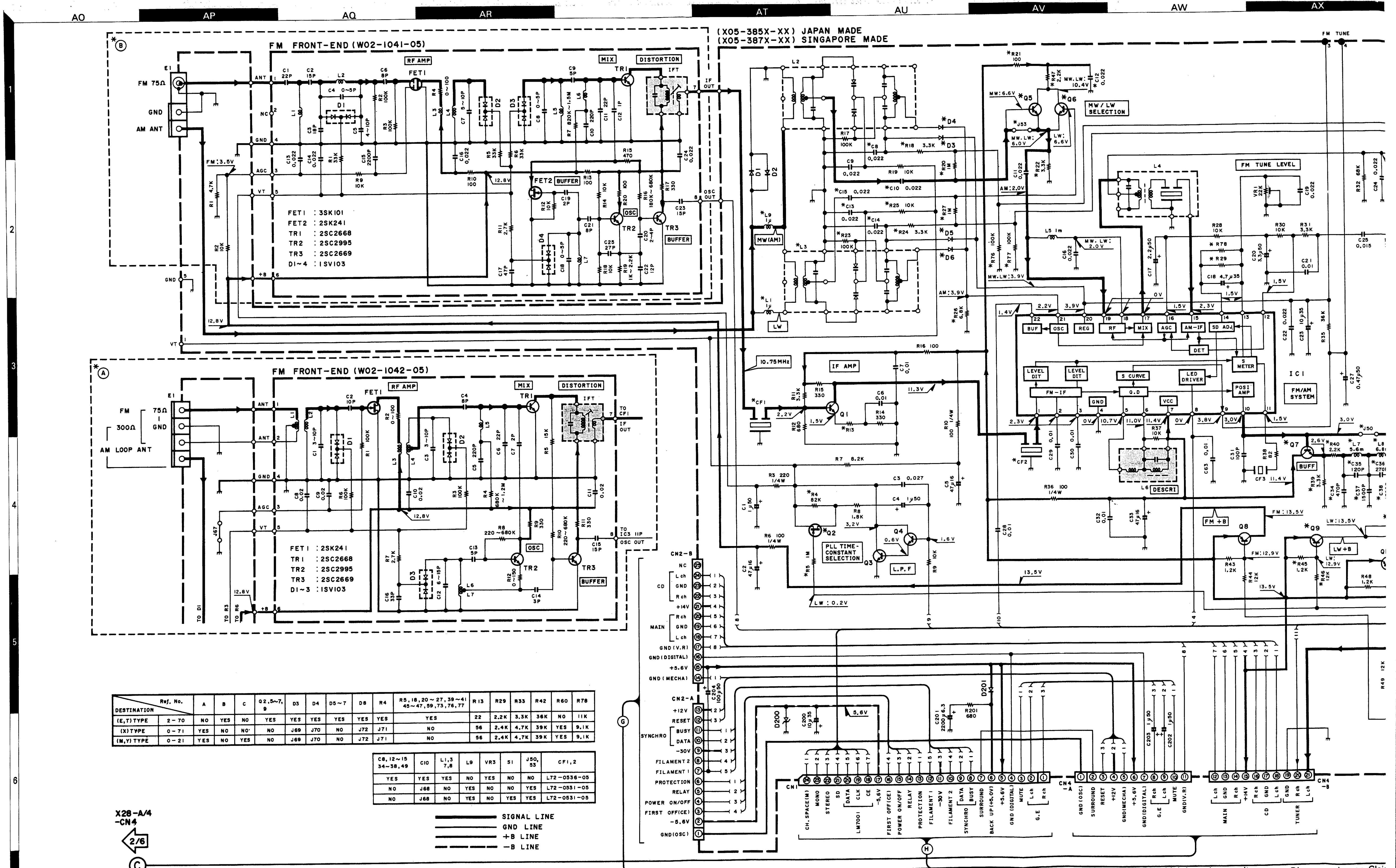
| Ref. No. / DESTINATION | | Q2 | D12,17 | D18 | D52 | R5,6 |
|---|---|---|---|---|---|---|
| 2-71 | E , T | NO | NO | YES | YES | NO |
| 0-21 | M , Y | YES | YES | NO | NO | YES |
| 0-71 | X | NO | NO | YES | NO | NO |

RXD-24(E)(4/6)

# RXD-24/24M

Y09-3262-71

**KENWOOD**


AO
AP
AQ
AR
AT
AU
AV
AW
AX
1
2
3
4
5
6
7
(X05-385X-XX) JAPAN MADE
(X05-387X-XX) SINGAPORE MADE
*Ⓑ
FM FRONT-END (W02-1041-05)
RF AMP
MIX
DISTORTION
FM 75Ω
GND
AM ANT
FET1 : 3SK101
FET2 : 2SK241
TR1 : 2SC2668
TR2 : 2SC2995
TR3 : 2SC2669
D1~4 : 1SV103
BUFFER
OSC
IF OUT
OSC OUT
FM:3.5V
12.8V
*Ⓐ
FM FRONT-END (W02-1042-05)
FM 75Ω 300Ω GND
AM LOOP ANT
FET1 : 2SK241
TR1 : 2SC2668
TR2 : 2SC2995
TR3 : 2SC2669
D1~3 : 1SV103
TO CF1 IF OUT
TO IC3 11P OSC OUT
TO D1
TO R3
TO R6
MW(AM)
LW
10.75MHz
IF AMP
PLL TIME-CONSTANT SELECTION
L.P.F
LW : 0.2V
MW/LW SELECTION
FM TUNE LEVEL
FM TUNE
BUF
OSC
REG
RF
MIX
AGC
AM-IF
SD ADJ
DET
S METER
LEVEL DIT
S CURVE
LED DRIVER
POSI AMP
FM-IF
Q.D
GND
VCC
DESCRI
IC1
FM/AM SYSTEM
BUFF
FM+B
LW+B
FM:13.5V
LW:13.5V
13.5V
CN2-B
NC
CD
L ch
GND
R ch
+14V
MAIN
GND(V.R)
GND(DIGITAL)
+5.6V
GND(MECHA)
CN2-A
+12V
RESET
SYNCHRO
BUSY
DATA
-30V
FILAMENT 2
FILAMENT 1
PROTECTION
RELAY
POWER ON/OFF
FIRST OFFICE
-5.6V
GND(OSC)
CN1
CN4-A
CN4-B
CH.SPACE(M)
MONO
STEREO
SD
DATA
CLK
CE
LM7001
-5.6V
FIRST OFFICE
POWER ON/OFF
RELAY
PROTECTION
FILAMENT 1
-30V
FILAMENT 2
SYNCHRO
BUSY
SURROUND
BACK UP(+5.0V)
+5.6V
GND(DIGITAL)
MUTE
G.E
TUNER
Ⓖ
Ⓗ
Ⓒ
X28-A/4 -CN4
2/6

| DESTINATION | Ref. No. | A | B | C | Q2,5~7,9 | D3 | D4 | D5~7 | D8 | R4 | R5,18,20~27,39~41 45~47,59,73,76,77 | R13 | R29 | R33 | R42 | R60 | R78 | C8,12~15 34~38,49 | C10 | L1,3 7,8 | L9 | VR3 | S1 | J50,53 | CF1,2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (E,T) TYPE | 2-70 | NO | YES | NO | YES | YES | YES | YES | YES | YES | YES | 22 | 2.2K | 3.3K | 36K | NO | 11K | YES | YES | YES | NO | YES | NO | NO | L72-0536-05 |
| (X) TYPE | 0-71 | YES | NO | NO | NO | J69 | J70 | NO | J72 | J71 | NO | 56 | 2.4K | 4.7K | 39K | YES | 9.1K | NO | J68 | NO | YES | NO | NO | YES | L72-0531-05 |
| (M,Y) TYPE | 0-21 | YES | NO | YES | NO | J69 | J70 | NO | J72 | J71 | NO | 56 | 2.4K | 4.7K | 39K | YES | 9.1K | NO | J68 | NO | YES | NO | YES | YES | L72-0531-05 |

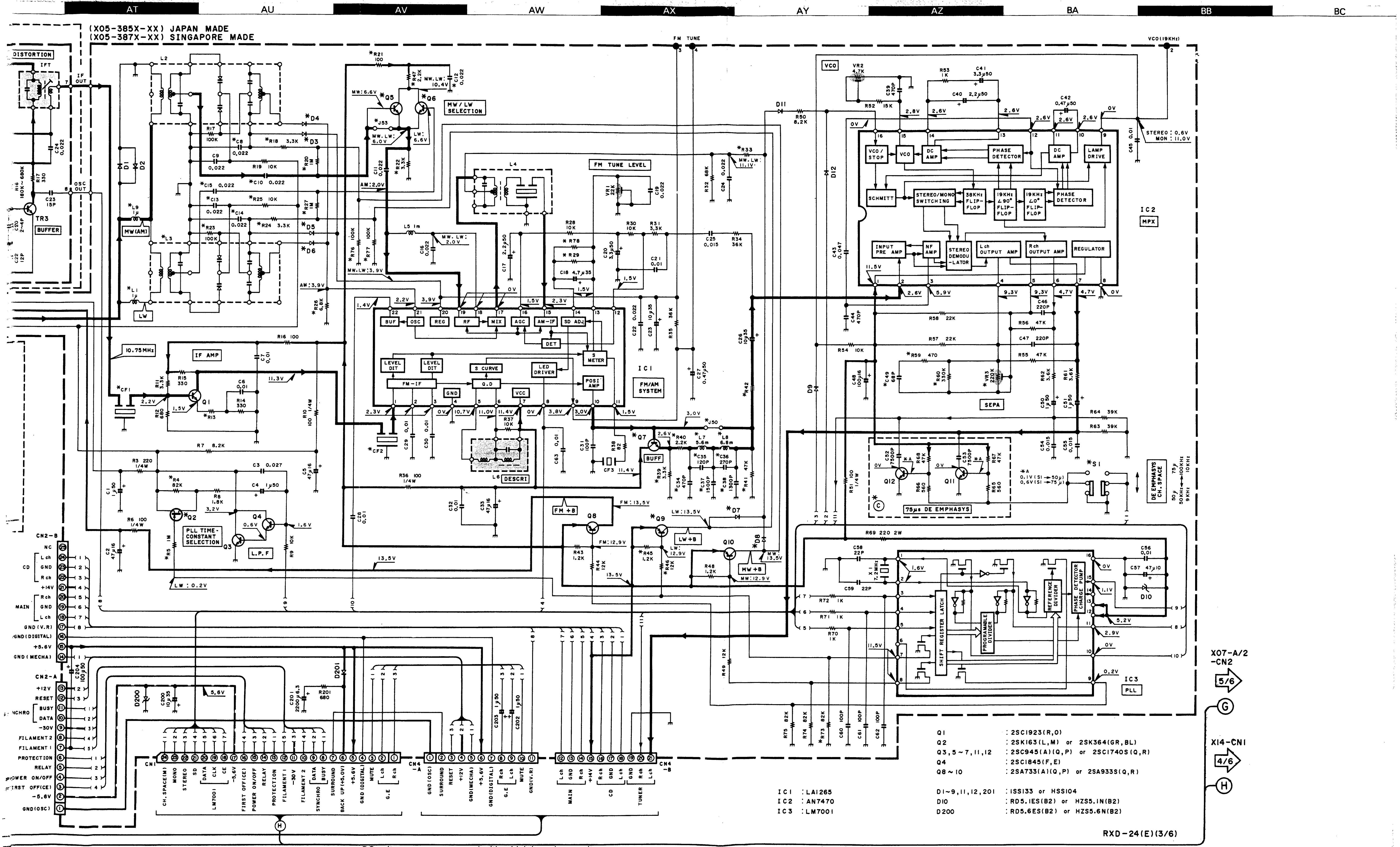
SIGNAL LINE
GND LINE
+B LINE
—B LINE

**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Glei
hochohmigen Spannur
ken die Meßwerte aufg
zelnen Instrumenten od


AT
AU
AV
AW
AX
AY
AZ
BA
BB
BC
(X05-385X-XX) JAPAN MADE
(X05-387X-XX) SINGAPORE MADE
DISTORTION
IFT
IF OUT
OSC OUT
TR3
BUFFER
MW(AM)
LW
MW/LW SELECTION
FM TUNE LEVEL
FM TUNE
VCO(19KHz)
10.75MHz
IF AMP
PLL TIME-CONSTANT SELECTION
L.P.F
BUF
OSC
REG
RF
MIX
AGC
AM-IF
SD ADJ
DET
S METER
LEVEL DIT
S CURVE
LED DRIVER
FM-IF
Q.D
GND
VCC
POSI AMP
IC1
FM/AM SYSTEM
DESCRI
BUFF
FM+B
LW+B
MW+B
VCO
VCO/STOP
DC AMP
PHASE DETECTOR
LAMP DRIVE
SCHMITT
STEREO/MONO SWITCHING
38KHz FLIP-FLOP
19KHz ∠90° FLIP-FLOP
19KHz ∠0° FLIP-FLOP
INPUT PRE AMP
NF AMP
STEREO DEMODU-LATOR
Lch OUTPUT AMP
Rch OUTPUT AMP
REGULATOR
IC2
MPX
STEREO: 0.6V
MON: 11.0V
SEPA
75µs DE EMPHASYS
DE EMPHASYS CH. SPACE
IC3
PLL
SHIFT REGISTER LATCH
PROGRAMABLE DIVIDER
REFERENCE DIVIDER
PHASE DETECTOR CHARGE PUMP
CN2-B
CN2-A
CN1
CN4-A
CN4-B
X07-A/2-CN2
5/6
X14-CN1
4/6
G
H

| | |
|---|---|
| Q1 | : 2SC1923(R,O) |
| Q2 | : 2SK163(L,M) or 2SK364(GR,BL) |
| Q3,5~7,11,12 | : 2SC945(A)(Q,P) or 2SC1740S(Q,R) |
| Q4 | : 2SC1845(F,E) |
| Q8~10 | : 2SA733(A)(Q,P) or 2SA933S(Q,R) |
| D1~9,11,12,201 | : 1SS133 or HSS104 |
| D10 | : RD5.1ES(B2) or HZS5.1N(B2) |
| D200 | : RD5.6ES(B2) or HZS5.6N(B2) |

| | |
|---|---|
| IC1 | : LA1265 |
| IC2 | : AN7470 |
| IC3 | : LM7001 |

RXD-24(E)(3/6)

**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

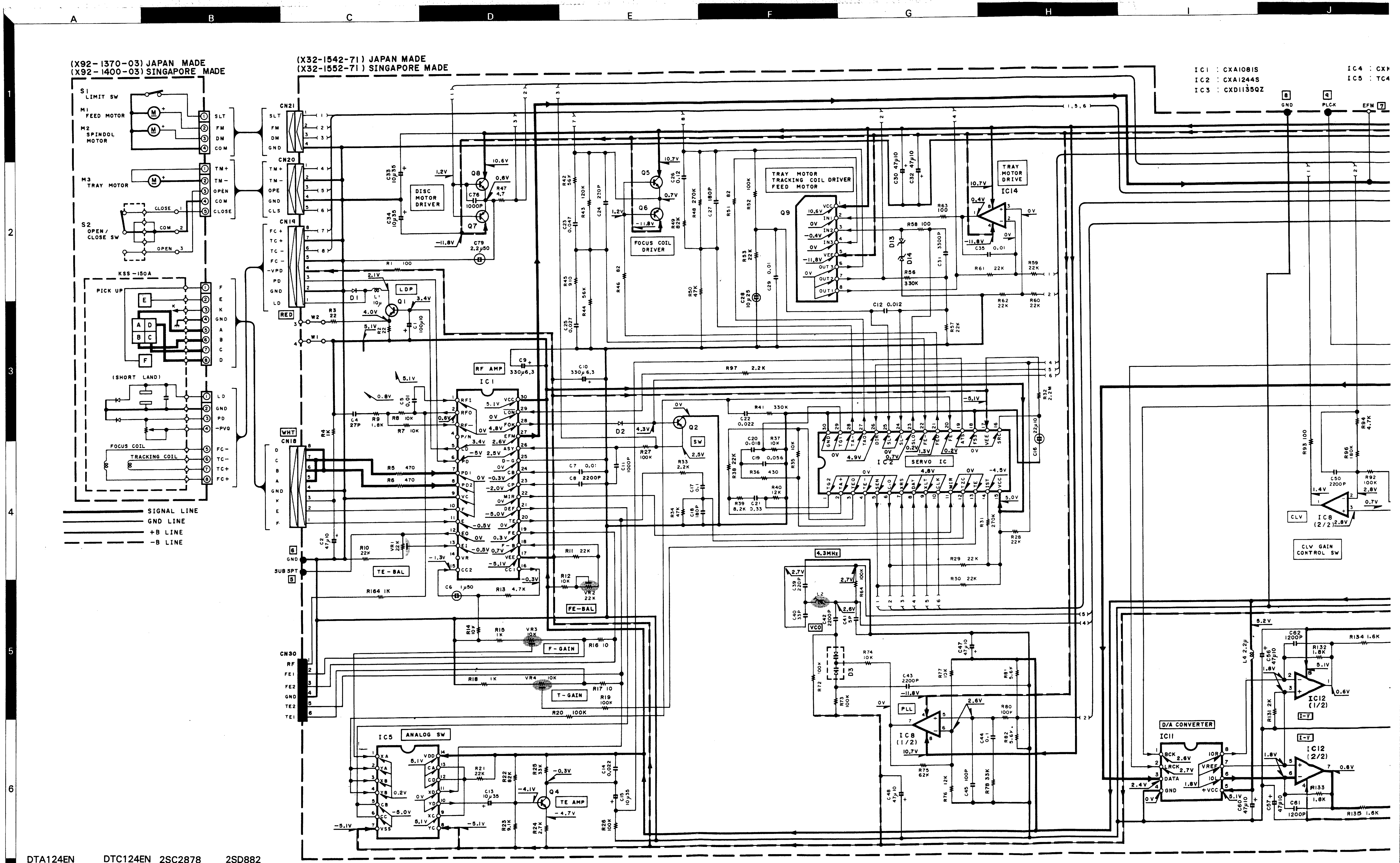
Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

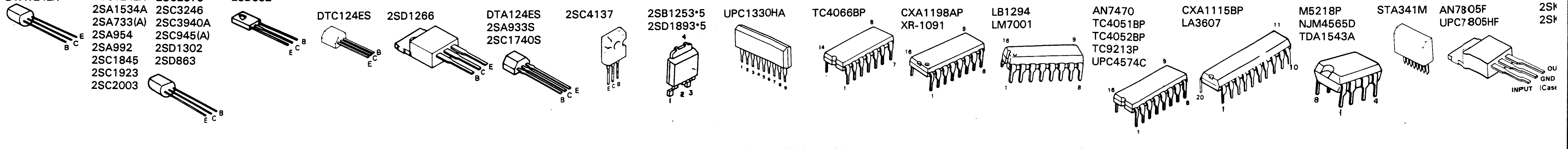
Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

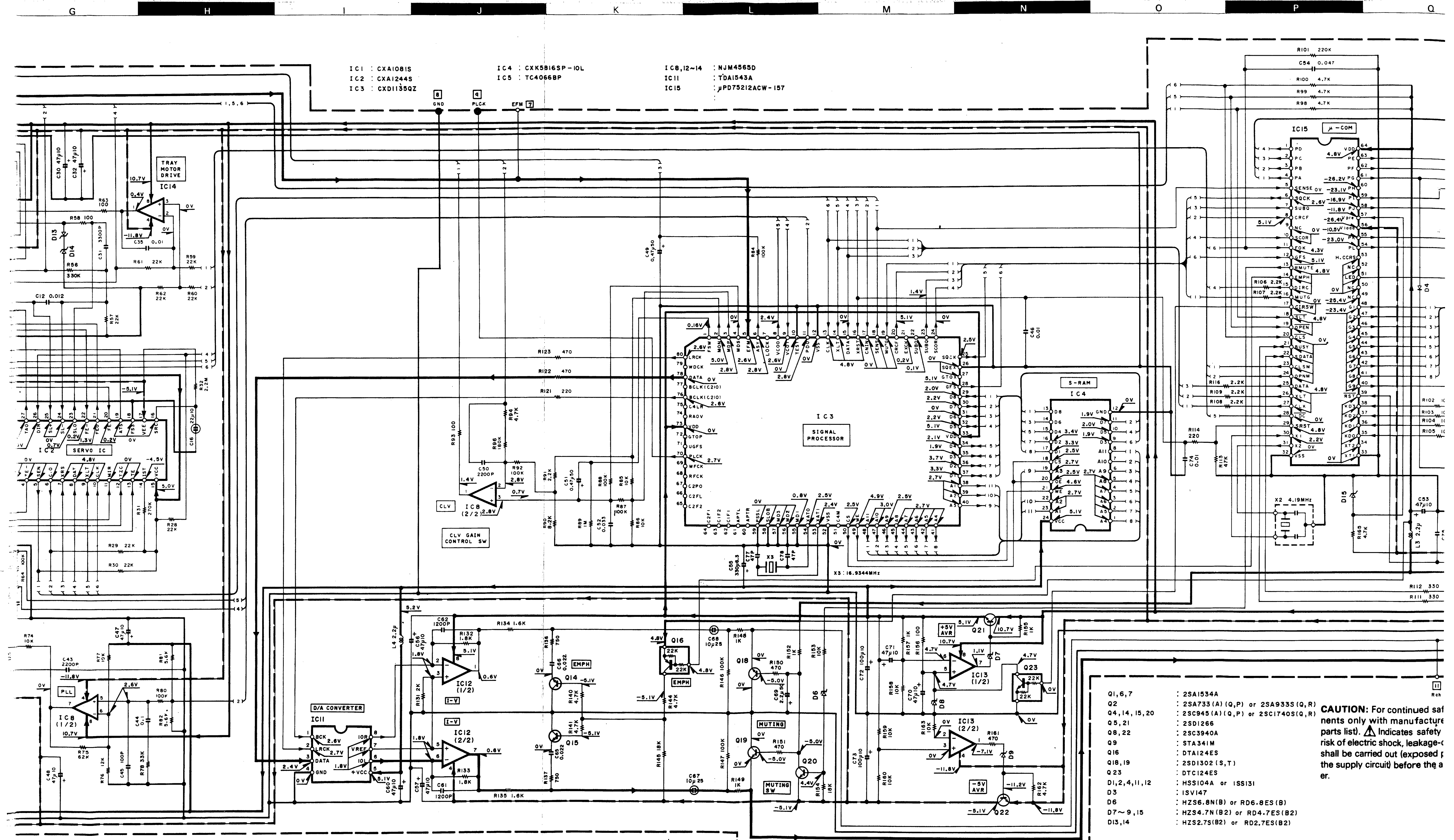
Y09-3262-71

# RXD-24/24M

**KENWOOD**


A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
(X92-1370-03) JAPAN MADE
(X92-1400-03) SINGAPORE MADE
(X32-1542-71) JAPAN MADE
(X32-1552-71) SINGAPORE MADE
IC1 : CXA1081S
IC2 : CXA1244S
IC3 : CXD1135QZ
IC4 : CXK
IC5 : TC4
8 GND
9 PLCK
EFM 7
S1 LIMIT SW
M1 FEED MOTOR
M2 SPINDOL MOTOR
M3 TRAY MOTOR
S2 OPEN/CLOSE SW
CLOSE
COM
OPEN
SLT
FM
DM
COM
TM+
TM−
OPEN
COM
CLOSE
KSS-150A
PICK UP
(SHORT LAND)
FOCUS COIL
TRACKING COIL
LD
GND
PD
−PVG
FC−
TC−
TC+
FC+
SIGNAL LINE
GND LINE
+B LINE
−B LINE
CN21
CN20
CN19
CN18
CN30
RED
WHT
DISC MOTOR DRIVER
FOCUS COIL DRIVER
TRAY MOTOR TRACKING COIL DRIVER FEED MOTOR
TRAY MOTOR DRIVE
IC14
LDP
RF AMP
IC1
SERVO IC
IC2
TE-BAL
FE-BAL
F-GAIN
T-GAIN
SW
4.3MHz
VCO
PLL
IC8 (1/2)
CLV
IC8 (2/2)
CLV GAIN CONTROL SW
D/A CONVERTER
IC11
I-V
IC12 (1/2)
IC12 (2/2)
IC5
ANALOG SW
TE AMP
Q1
Q2
Q4
Q5
Q6
Q7
Q8
Q9
D1
D2
D3
D13
D14
VR1 22K
VR2 22K
VR3 10K
VR4 10K
SUB SPT 5
GND 6
RF
FE1
FE2
GND
TE2
TE1

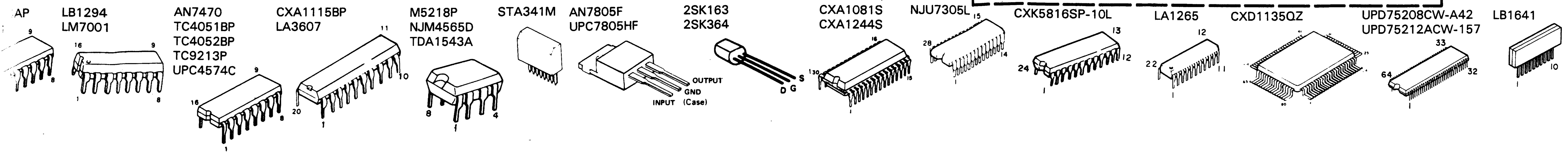

DTA124EN
DTC124EN
2SA1534A
2SA733(A)
2SA954
2SA992
2SC1845
2SC1923
2SC2003
2SC2878
2SC3246
2SC3940A
2SC945(A)
2SD1302
2SD863
2SD882
DTC124ES
2SD1266
DTA124ES
2SA933S
2SC1740S
2SC4137
2SB1253•5
2SD1893•5
UPC1330HA
TC4066BP
CXA1198AP
XR-1091
LB1294
LM7001
AN7470
TC4051BP
TC4052BP
TC9213P
UPC4574C
CXA1115BP
LA3607
M5218P
NJM4565D
TDA1543A
STA341M
AN7805F
UPC7805HF
E
B
C
INPUT
GND
(Case
OU
2SK
2SK


G
H
I
J
K
L
M
N
O
P
Q
GND
PLCK
EFM
TRAY MOTOR DRIVE
IC14
IC2
SERVO IC
IC3
SIGNAL PROCESSOR
S-RAM
IC4
IC15
μ-COM
CLV
IC8 (2/2)
CLV GAIN CONTROL SW
PLL
IC8 (1/2)
D/A CONVERTER
IC11
IC12 (1/2)
IC12 (2/2)
I-V
EMPH
MUTING
MUTING SW
+5V AVR
-5V AVR
IC13 (1/2)
IC13 (2/2)
X2 4.19MHz
X3 : 16.9344MHz
Rch

IC1 : CXA1081S
IC2 : CXA1244S
IC3 : CXD1135QZ
IC4 : CXK5816SP-10L
IC5 : TC4066BP
IC8,12~14 : NJM4565D
IC11 : TDA1543A
IC15 : μPD75212ACW-157

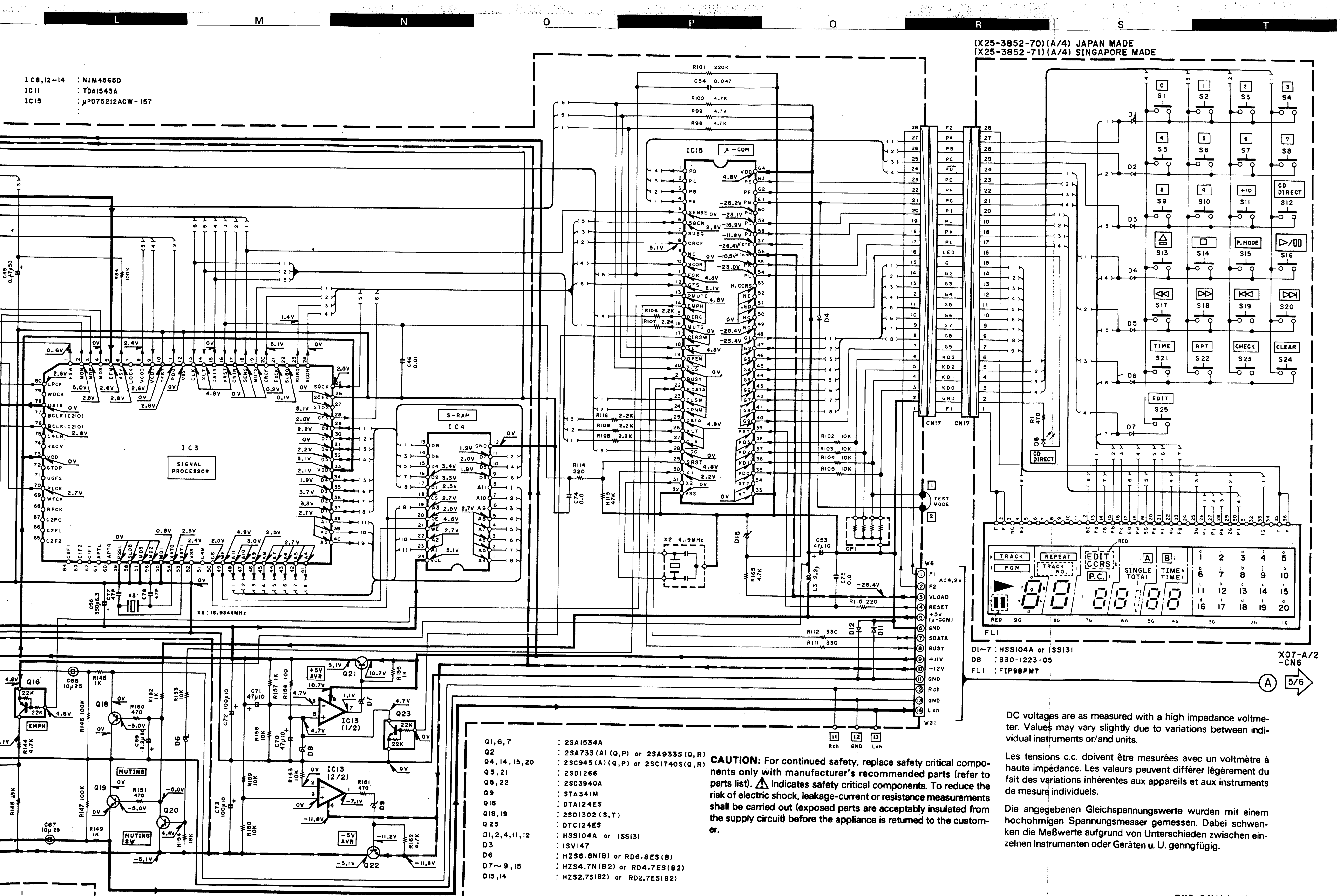
Q1,6,7 : 2SA1534A
Q2 : 2SA733(A)(Q,P) or 2SA933S(Q,R)
Q4,14,15,20 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q5,21 : 2SD1266
Q8,22 : 2SC3940A
Q9 : STA341M
Q16 : DTA124ES
Q18,19 : 2SD1302(S,T)
Q23 : DTC124ES
D1,2,4,11,12 : HSS104A or 1SS131
D3 : 1SV147
D6 : HZS6.8N(B) or RD6.8ES(B)
D7~9,15 : HZS4.7N(B2) or RD4.7ES(B2)
D13,14 : HZS2.7S(B2) or RD2.7ES(B2)

**CAUTION:** For continued saf
nents only with manufacture
parts list). ⚠ Indicates safety
risk of electric shock, leakage-c
shall be carried out (exposed p
the supply circuit) before the a
er.


AP
LB1294
LM7001
AN7470
TC4051BP
TC4052BP
TC9213P
UPC4574C
CXA1115BP
LA3607
M5218P
NJM4565D
TDA1543A
STA341M
AN7805F
UPC7805HF
OUTPUT
GND
INPUT (Case)
2SK163
2SK364
D
G
S
CXA1081S
CXA1244S
NJU7305L
CXK5816SP-10L
LA1265
CXD1135QZ
UPD75208CW-A42
UPD75212ACW-157
LB1641

(X25-3852-70)(A/4) JAPAN MADE
(X25-3852-71)(A/4) SINGAPORE MADE

IC8,12~14 : NJM4565D
IC11 : TDA1543A
IC15 : μPD75212ACW-157


IC3
SIGNAL PROCESSOR
S-RAM
IC4
IC15
μ-COM
X2 4.19MHz
X3 : 16.9344MHz
CN17
CN17
W6
VLOAD
RESET
+5V (μ-COM)
GND
SDATA
BUSY
+11V
−12V
GND
Rch
GND
Lch
AC4.2V
W31
TEST MODE
CP1
FL1
TRACK
REPEAT
PGM
TRACK NO.
EDIT
CCRS
P.C.
SINGLE TOTAL
TIME TIME
RED
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12
CD DIRECT
+10
P.MODE
S13 S14 S15 S16 S17 S18 S19 S20
TIME
RPT
CHECK
CLEAR
S21 S22 S23 S24
EDIT
S25
D1 D2 D3 D4 D5 D6 D7 D8
Q16
EMPH
Q18
Q19
Q20
Q21
Q22
Q23
MUTING
MUTING SW
+5V AVR
−5V AVR
IC13 (1/2)
IC13 (2/2)
X07-A/2 -CN6
A
5/6

Rch GND Lch

D1~7 : HSS104A or ISS131
D8 : B30-1223-05
FL1 : FIP9BPM7

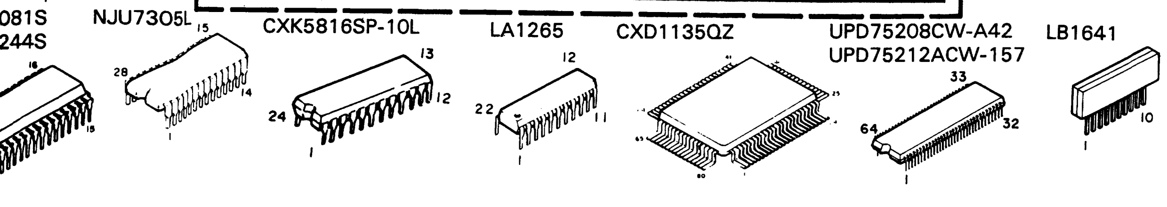
Q1,6,7 : 2SA1534A
Q2 : 2SA733(A)(Q,P) or 2SA933S(Q,R)
Q4,14,15,20 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q5,21 : 2SD1266
Q8,22 : 2SC3940A
Q9 : STA341M
Q16 : DTA124ES
Q18,19 : 2SD1302(S,T)
Q23 : DTC124ES
D1,2,4,11,12 : HSS104A or ISS131
D3 : ISV147
D6 : HZS6.8N(B) or RD6.8ES(B)
D7~9,15 : HZS4.7N(B2) or RD4.7ES(B2)
D13,14 : HZS2.7S(B2) or RD2.7ES(B2)

**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

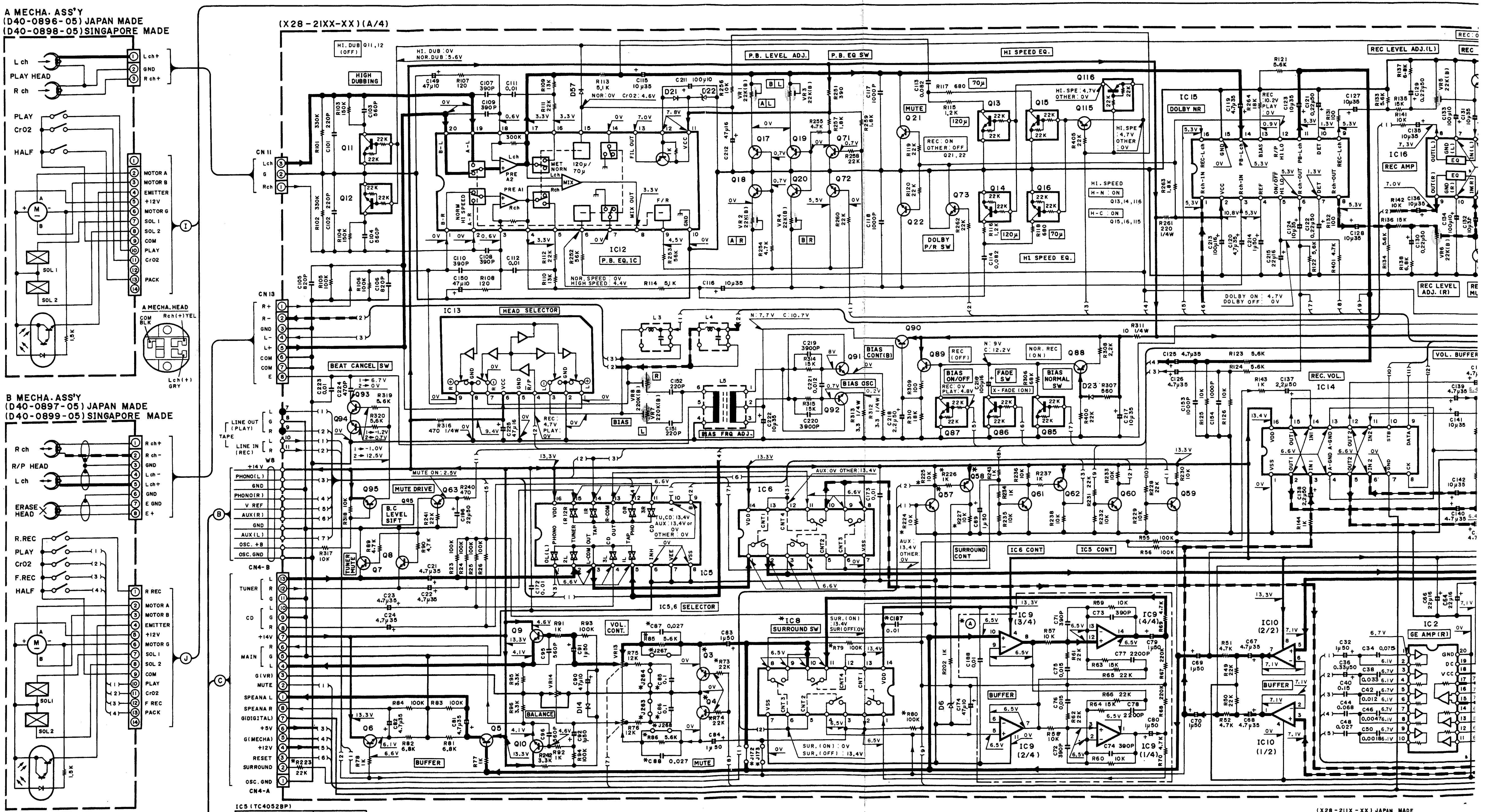

081S
244S
NJU7305L
CXK5816SP-10L
LA1265
CXD1135QZ
UPD75208CW-A42
UPD75212ACW-157
LB1641
33
64
32
24
13
12
22
10

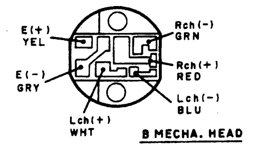
RXD-24(E) (1/6)

Y09-3262-71

# RXD-24/24M

KENWOOD


A MECHA. ASS'Y
(D40-0896-05) JAPAN MADE
(D40-0898-05) SINGAPORE MADE
B MECHA. ASS'Y
(D40-0897-05) JAPAN MADE
(D40-0899-05) SINGAPORE MADE
(X28-21XX-XX) (A/4)
A MECHA. HEAD
PLAY HEAD
R/P HEAD
ERASE HEAD
CN11
CN13
CN4-B
CN4-A
HIGH DUBBING
P.B. LEVEL ADJ.
P.B. EQ SW
HI SPEED EQ.
IC12 P.B. EQ. IC
IC13 HEAD SELECTOR
IC15 DOLBY NR
IC16 REC AMP
REC LEVEL ADJ. (L)
REC LEVEL ADJ. (R)
DOLBY P/R SW
MUTE
BEAT CANCEL SW
BIAS
BIAS FRQ ADJ.
BIAS OSC
BIAS CONT (B)
BIAS ON/OFF
FADE SW
BIAS NORMAL SW
MUTE DRIVE
B.C LEVEL SIFT
TUNER MUTE
IC5,6 SELECTOR
IC6
IC5
*IC8 SURROUND SW
SURROUND CONT
IC6 CONT
IC5 CONT
IC14 REC. VOL.
VOL. BUFFER
VOL. CONT.
BALANCE
BUFFER
IC9 (3/4)
IC9 (4/4)
IC9 (2/4)
IC9 (1/4)
IC10 (2/2)
IC10 (1/2)
IC2 GE AMP (R)
PHONO (L)
PHONO (R)
TUNER
CD
MAIN
SPEANA L
SPEANA R
RESET
SURROUND
OSC. GND
LINE OUT (PLAY)
LINE IN (REC)
TAPE


E(+) YEL
E(-) GRY
Lch(+) WHT
Rch(-) GRN
Rch(+) RED
Lch(-) BLU
B MECHA. HEAD

IC5 (TC4052BP)

| CONTROL INPUTS | | | "ON" CHANNEL |
|---|---|---|---|
| INHIBIT | B 9PIN | A 10PIN | TC4052BP |
| L | L | L | 0X , 0Y |
| L | L | H | 1X , 1Y |
| L | H | L | 2X , 2Y |
| L | H | H | 3X , 3Y |

IC1,2 : LA3607
IC3 : NJU7305L
IC5 : TC4052BP
IC6,8 : TC4066BP
IC7,10,17 : NJM4565D
or M5218P
IC9 : μPC4574C
IC11 : LB1641

IC12 : CXA1115BP
IC13 : μPC1330HA
IC14 : TC9213P
IC15 : HA12136A
IC16 : CXA1198AP
IC18 : μPD75112CW-044

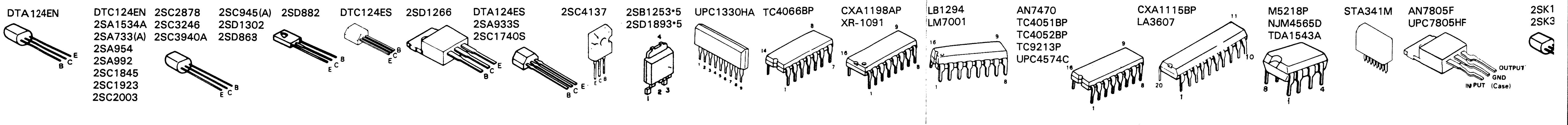
Q1~4,7,8,23,24 : 2SD1302(S,T)
Q5,6,9,10,25,26,93,94 : 2SC1845(F,E)
Q11~16,85~87,106,
111 : DTC124EN
Q17~22,27,28,51,52,54,55,57,59~61
71~73,75~84,89,101,102,116
: 2SC945(A)(Q,P)
or 2SC1740S(Q,R)

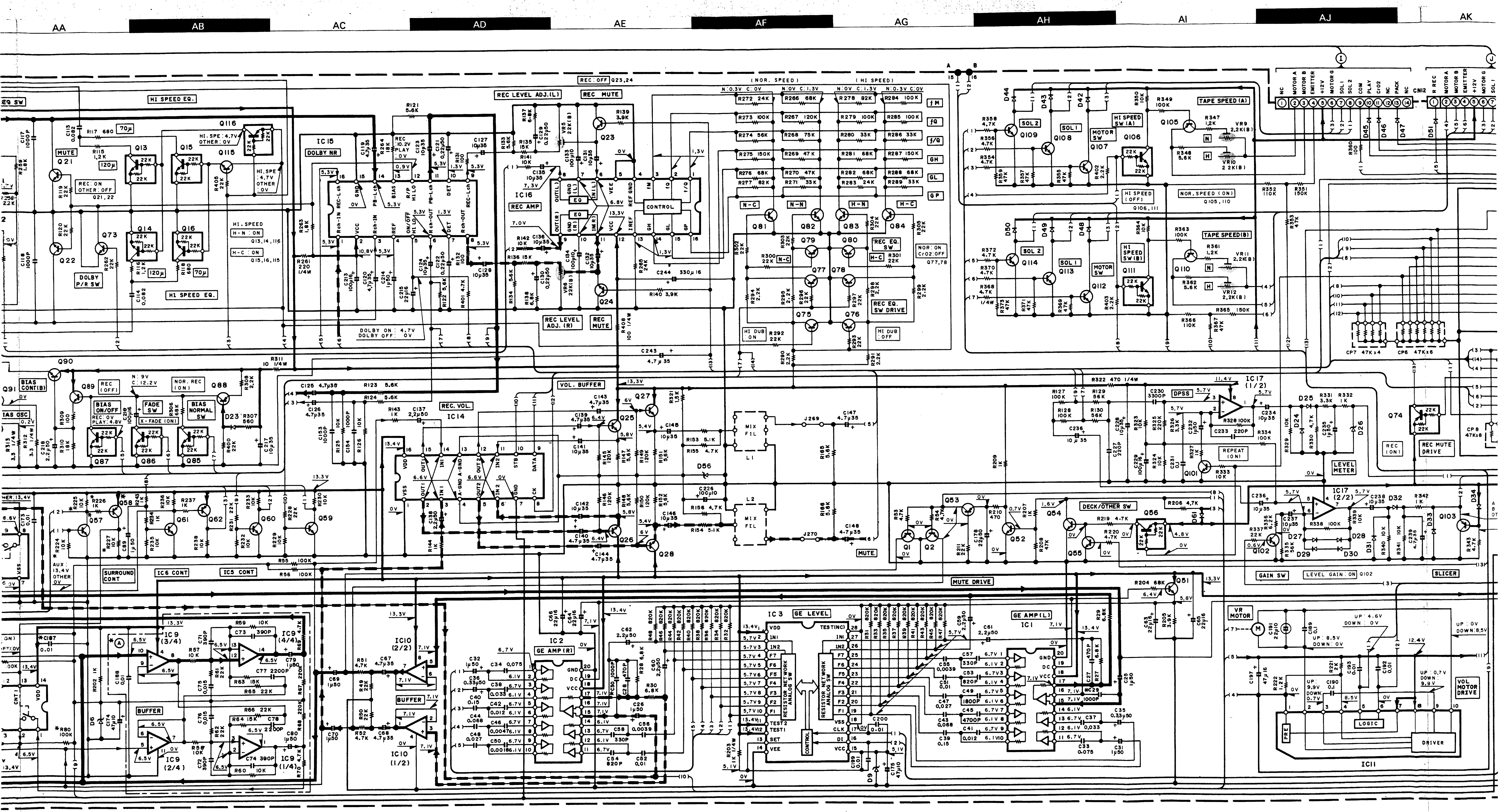
Q53,58,62,63,88,103,105,110
: 2SA733(A)(Q,P)
or 2SA933S(Q,R)
Q56,74,116
: DTA124EN
Q90 : 2SD863(E,F)
Q91,92 : 2SC945(A)(Q,P)
Q95 : 2SA992(F,E)
Q107~109,112~114 : 2SC3246

D6,10,56 : RD6.8ES(B2) or HZS6.8N(B2)
D9,26 : RD5.1JS(B2) or HZS5.1S(B2)
D11,12,21,23~25,27~36,39,41,45~47,
51~55,57~59,61 : ISS133 or HSS104
D22 : RD8.2JS(B2) or HZS8.2S(B2)
D42~44,48~50 : S5566B

(X28-211X-XX) JAPAN MADE
(X28-212X-XX) SINGAPORE MADE

| DESTINATION | REF.No. | A | J172,173,263,264,267,268 | IC8 |
|---|---|---|---|---|
| 2-71 | E,T | NO | YES | NO |
| 0-21 | X,M,Y | YES | NO | YES |


DTA124EN
DTC124EN
2SA1534A
2SA733(A)
2SA954
2SA992
2SC1845
2SC1923
2SC2003
2SC2878
2SC3246
2SC3940A
2SC945(A)
2SD1302
2SD863
2SD882
DTC124ES
2SD1266
DTA124ES
2SA933S
2SC1740S
2SC4137
2SB1253*5
2SD1893*5
UPC1330HA
TC4066BP
CXA1198AP
XR-1091
LB1294
LM7001
AN7470
TC4051BP
TC4052BP
TC9213P
UPC4574C
CXA1115BP
LA3607
M5218P
NJM4565D
TDA1543A
STA341M
AN7805F
UPC7805HF
2SK1
2SK3
E
C
B
OUTPUT
GND
INPUT (Case)



AA
AB
AC
AD
AE
AF
AG
AH
AI
AJ
AK
EQ SW
HI SPEED EQ.
MUTE
Q21
Q22
Q13
Q14
Q15
Q16
Q73
Q115
Q116
HI.SPE : 4.7V OTHER : 0V
REC : ON OTHER : OFF
Q21,22
DOLBY P/R SW
HI SPEED EQ.
H1.SPEED
H-N : ON Q13,14,116
H-C : ON Q15,16,115
IC15
DOLBY NR
REC-Lch
PB-Lch
BIAS
R/P HI LO
PB-Lch
DET
REC-Lch
Rch-IN
REC-Rch
REF
ON/OFF HI LO
Rch-OUT
DOLBY ON : 4.7V DOLBY OFF : 0V
REC LEVEL ADJ.(L)
REC : OFF Q23,24
REC MUTE
IC16
REC AMP
EQ
CONTROL
REC LEVEL ADJ.(R)
REC MUTE
Q23
Q24
(NOR. SPEED)
(HI SPEED)
N:0.3V C:0V
N:0V C:1.3V
fM
fQ
f/Q
GH
GL
GP
N-C
N-N
H-N
H-C
Q75
Q76
Q77
Q78
Q79
Q80
Q81
Q82
Q83
Q84
REC EQ. SW
REC EQ. SW DRIVE
NOR : ON CrO2 : OFF Q77,78
HI DUB ON
HI DUB OFF
Q44
SOL 2
SOL 1
Q109
Q108
Q107
Q106
Q105
MOTOR SW
HI SPEED SW (A)
HI SPEED (OFF)
TAPE SPEED (A)
NOR. SPEED (ON) Q105,110
Q106,111
TAPE SPEED (B)
Q114
Q113
Q112
Q111
Q110
HI SPEED SW (B)
NC
MOTOR A
MOTOR B
EMITTER
+12V
MOTOR G
SOL 1
SOL 2
COM
PLAY
CrO2
NC
PACK
CN12
REC
CP7 47K×4
CP6 47K×6
Q90
Q91
BIAS CONT(B)
Q89
REC (OFF)
N: 9V C: 12.2V
NOR. REC (ON)
Q88
BIAS OSC
BIAS ON/OFF
REC : 0V PLAY : 4.8V
FADE SW
X-FADE (ON)
BIAS NORMAL SW
Q87
Q86
Q85
Q23
VOL. BUFFER
REC. VOL.
IC14
Q25
Q26
Q27
Q28
MIX FIL
L1
L2
D56
J269
J270
MUTE
IC17 (1/2)
IC17 (2/2)
DPSS
REPEAT (ON)
Q101
Q74
REC (ON)
REC MUTE DRIVE
LEVEL METER
CP8 47K×8
Q57
Q58
Q59
Q60
Q61
Q62
SURROUND CONT
IC6 CONT
IC5 CONT
Q53
Q1
Q2
Q52
Q54
Q55
Q56
DECK/OTHER SW
Q102
Q103
GAIN SW
LEVEL GAIN : ON Q102
SLICER
MUTE DRIVE
Q51
VR MOTOR
VOL MOTOR DRIVE
IC9 (3/4)
IC9 (4/4)
IC9 (2/4)
IC9 (1/4)
BUFFER
IC10 (2/2)
IC10 (1/2)
IC2
GE AMP (R)
IC3
GE LEVEL
RESISTOR NETWORK
ANALOG SW
CONTROL
IC1
GE AMP (L)
IC11
PRE
LOGIC
DRIVER

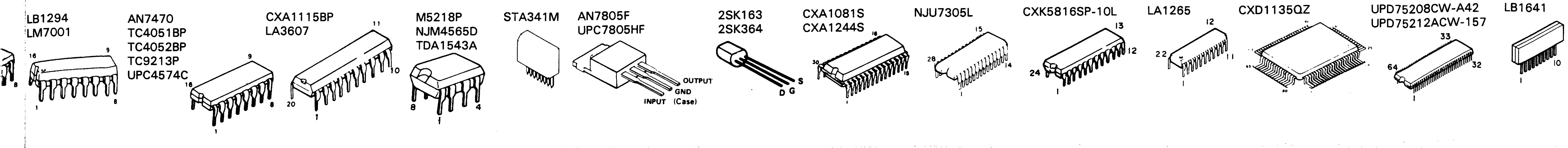
Q53,58,62,63,88,103,105,110
: 2SA733(A)(Q,P)
or 2SA933S(Q,R)
Q56,74,116
: DTA124EN
Q90 : 2SD863(E,F)
Q91,92 : 2SC945(A)(Q,P)
Q95 : 2SA992(F,E)
Q107~109,112~114 : 2SC3246

D6,10,56 : RD6.8ES(B2) or HZS6.8N(B2)
D9,26 : RD5.1JS(B2) or HZS5.1S(B2)
D11,12,21,23~25,27~36,39,41,45~47,
51~55,57~59,61 : ISS133 or HSS104
D22 : RD8.2JS(B2) or HZS8.2S(B2)
D42~44,48~50 : S5566B

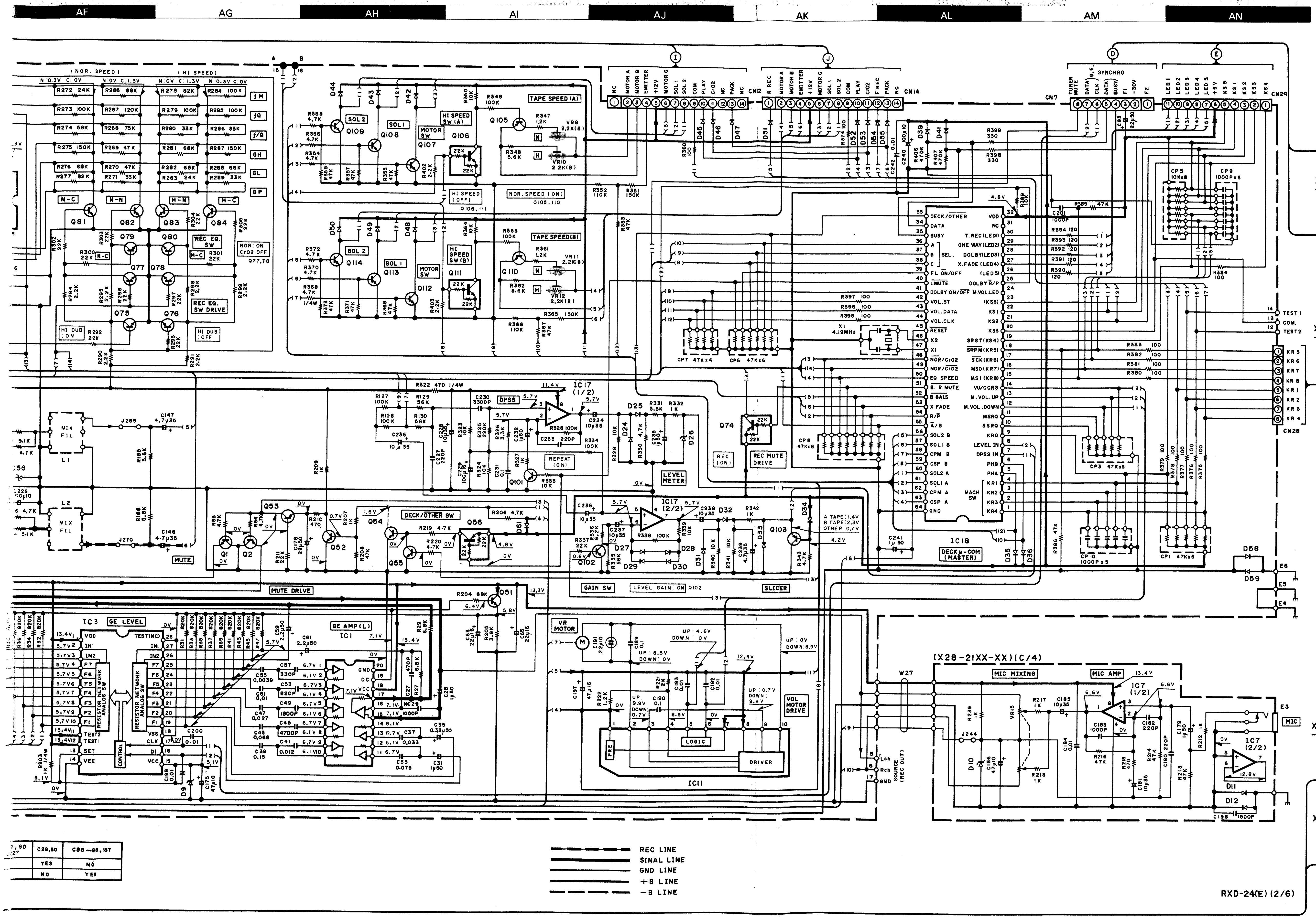
(X28-211X-XX) JAPAN MADE
(X28-212X-XX) SINGAPORE MADE

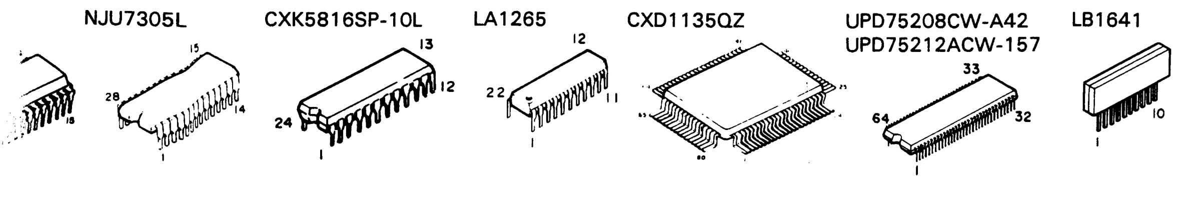
| DESTINATION \ REF.No. | | A | J172,173,263, 264,267,268 | IC8 | Q3,4,57,58 | R73,74,79,80 86,223~227 | C29,30 | C85~88,187 |
|---|---|---|---|---|---|---|---|---|
| 2-71 | E,T | NO | YES | NO | NO | NO | YES | NO |
| 0-21 | X,M,Y | YES | NO | YES | YES | YES | NO | YES |

━━━━ REC LINE
━━━━ SINAL LINE
──── GND LINE
──── +B LINE
━ ━ ━ −B LINE



LB1294
LM7001
16
9
1
8
AN7470
TC4051BP
TC4052BP
TC9213P
UPC4574C
9
16
1
8
CXA1115BP
LA3607
11
10
20
1
M5218P
NJM4565D
TDA1543A
8
1
STA341M
AN7805F
UPC7805HF
OUTPUT
GND
INPUT (Case)
2SK163
2SK364
S
D
G
CXA1081S
CXA1244S
30
16
15
1
NJU7305L
15
28
14
1
CXK5816SP-10L
13
12
24
1
LA1265
12
22
11
1
CXD1135QZ
UPD75208CW-A42
UPD75212ACW-157
33
64
32
1
LB1641
10
1

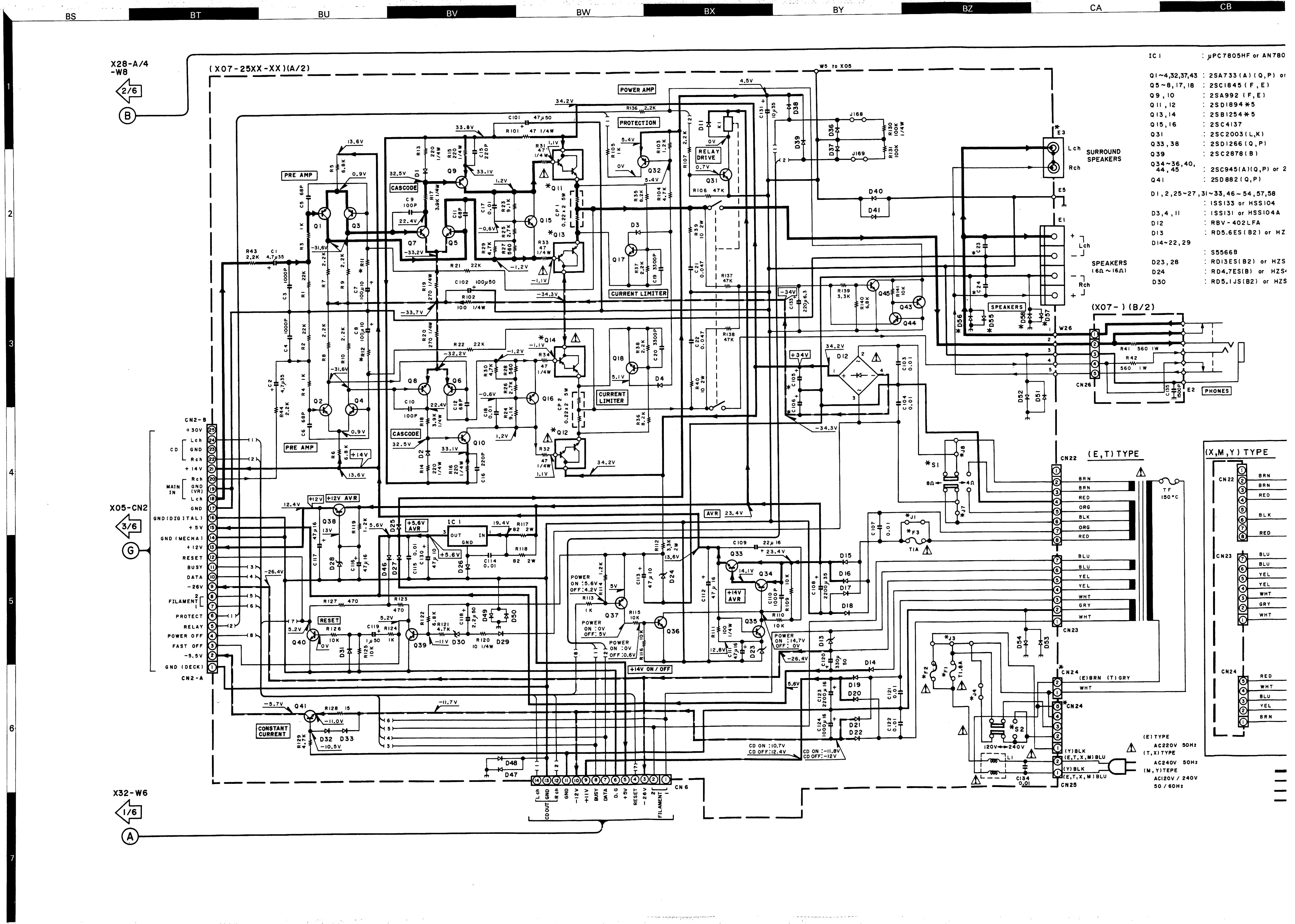

AF
AG
AH
AI
AJ
AK
AL
AM
AN
TAPE SPEED (A)
TAPE SPEED (B)
NOR. SPEED (ON) Q105,110
HI SPEED (OFF) Q106,111
SOL 2
SOL 1
MOTOR SW
HI SPEED SW (A)
HI SPEED SW (B)
REC EQ. SW
REC EQ. SW DRIVE
HI DUB ON
HI DUB OFF
NOR : ON Cr02 : OFF Q77,78
MIX FIL
MUTE
MUTE DRIVE
DECK/OTHER SW
DPSS
REPEAT (ON)
LEVEL METER
REC (ON)
REC MUTE DRIVE
GAIN SW
LEVEL GAIN : ON Q102
SLICER
IC17 (1/2)
IC17 (2/2)
IC18
DECK μ-COM (MASTER)
IC3
GE LEVEL
GE AMP (L)
IC1
IC11
LOGIC
DRIVER
VR MOTOR
VOL MOTOR DRIVE
(X28-21XX-XX) (C/4)
MIC MIXING
MIC AMP
IC7 (1/2)
IC7 (2/2)
MIC
SOURCE (REC OUT)
W27
CN7
CN12
CN14
CN24
CN28
X14-W7
4/6
X25-B/4 -W29
6/6
X25-B/4 -W28
6/6
X28-B/4 -CN8
5/6
X05-CN4
3/6
REC LINE
SINAL LINE
GND LINE
+B LINE
−B LINE
RXD-24(E) (2/6)


NJU7305L
CXK5816SP-10L
LA1265
CXD1135QZ
UPD75208CW-A42
UPD75212ACW-157
LB1641

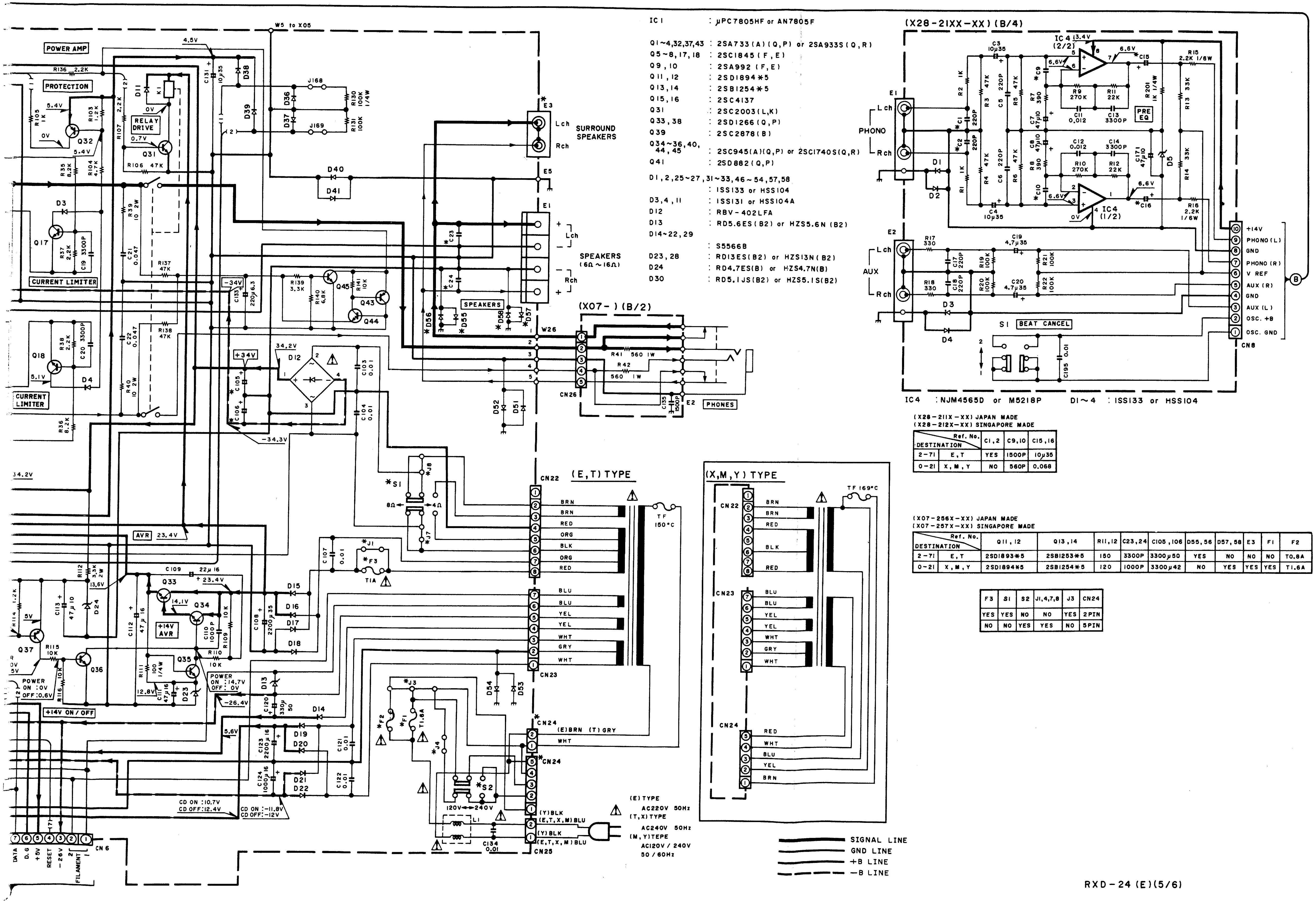
RXD-24/24M

KENWOOD

Y09-3262-71


BS
BT
BU
BV
BW
BX
BY
BZ
CA
CB
1
2
3
4
5
6
7
X28-A/4
-W8
2/6
B
(X07-25XX-XX)(A/2)
W5 to X05
POWER AMP
PROTECTION
RELAY DRIVE
PRE AMP
CASCODE
CURRENT LIMITER
SPEAKERS
SURROUND SPEAKERS
Lch
Rch
SPEAKERS (6Ω～16Ω)
(X07- )(B/2)
PHONES
CN2-B
+30V
Lch
GND
Rch
+14V
Rch
GND (VR)
Lch
CD
MAIN IN
GND
GND(DIGITAL)
+5V
GND (MECHA)
+12V
RESET
BUSY
DATA
-26V
FILAMENT
PROTECT
RELAY
POWER OFF
FAST OFF
-5.5V
GND (DECK)
CN2-A
X05-CN2
3/6
G
+12V
+12V AVR
+5.6V AVR
IC1
OUT
IN
GND
RESET
+14V AVR
+14V ON/OFF
AVR 23.4V
POWER ON :5.6V OFF:4.2V
POWER ON :0V OFF:5V
POWER ON :0V OFF:0.6V
POWER ON :14.7V OFF: 0V
CONSTANT CURRENT
CD ON :10.7V CD OFF:12.4V
CD ON :-11.8V CD OFF:-12V
CN6
Lch
CD OUT GND
Rch
GND
-12V
+11V
BUSY
DATA
D.G
+5V
RESET
-26V
FILAMENT
X32-W6
1/6
A
CN22
(E,T) TYPE
(X,M,Y) TYPE
BRN
RED
ORG
BLK
YEL
WHT
GRY
BLU
CN23
CN24
CN25
CN26
TF 150°C
T1A
T1.6A
120V↔240V
L1
C134 0.01
(E)BRN (T)GRY
(Y)BLK (E,T,X,M)BLU
(E)TYPE AC220V 50Hz
(T,X)TYPE AC240V 50Hz
(M,Y)TEPE AC120V / 240V 50 / 60Hz
8Ω
4Ω
*S1
*S2
*F1
*F2
*F3
*J1
*J3
*J4
*J7
*J8
E1
E2
E3
E5
W26
K1
CP1 0.22×2 5W
CP2 0.22×2 5W
R41 560 1W
R42 560 1W
34.2V
33.8V
32.5V
13.6V
0.9V
-31.6V
-33.2V
-33.7V
-34.3V
-34V
+34V
4.5V
5.4V
1.1V
1.2V
-1.2V
-1.1V
22.4V
33.1V
-0.6V
12.4V
13V
5.6V
19.4V
5.2V
-11V
-5.7V
-11.0V
-10.5V
-11.7V
-26.4V
14.1V
12.8V
3.6V
23.4V
5.6V

| | |
|---|---|
| IC1 | : μPC7805HF or AN780 |
| Q1～4,32,37,43 | : 2SA733(A)(Q,P) o |
| Q5～8,17,18 | : 2SC1845(F,E) |
| Q9,10 | : 2SA992 (F,E) |
| Q11,12 | : 2SD1894＊5 |
| Q13,14 | : 2SB1254＊5 |
| Q15,16 | : 2SC4137 |
| Q31 | : 2SC2003(L,K) |
| Q33,38 | : 2SD1266(Q,P) |
| Q39 | : 2SC2878(B) |
| Q34～36,40,<br>44,45 | : 2SC945(A)(Q,P) or 2 |
| Q41 | : 2SD882(Q,P) |
| D1,2,25～27,31～33,46～54,57,58 | : 1SS133 or HSS104 |
| D3,4,11 | : 1SS131 or HSS104A |
| D12 | : RBV-402LFA |
| D13 | : RD5.6ES(B2) or HZ |
| D14～22,29 | : S5566B |
| D23,28 | : RD13ES(B2) or HZS |
| D24 | : RD4.7ES(B) or HZS |
| D30 | : RD5.1JS(B2) or HZS |


POWER AMP
PROTECTION
RELAY DRIVE
CURRENT LIMITER
W5 to X05
SURROUND SPEAKERS
Lch
Rch
SPEAKERS (6Ω～16Ω)
SPEAKERS
(X07- ) (B/2)
PHONES
W26
CN26
+34V
-34V
-34.3V
AVR 23.4V
+14V AVR
POWER ON :14.7V OFF: 0V
POWER ON :0V OFF :0.6V
+14V ON / OFF
CD ON :10.7V CD OFF:12.4V
CD ON :-11.8V CD OFF:-12V
CN6
DATA
D.G
+5V
RESET
-26V
FILAMENT
(E,T) TYPE
(X,M,Y) TYPE
CN22
CN23
CN24
CN25
TF 150°C
TF 169°C
BRN
RED
ORG
BLK
BLU
YEL
WHT
GRY
(E)BRN (T)GRY
(Y)BLK
(E,T,X,M)BLU
120V↔240V
(E)TYPE
AC220V 50Hz
(T,X)TYPE
AC240V 50Hz
(M,Y)TEPE
AC120V / 240V
50 / 60Hz
(X28-21XX-XX) (B/4)
PHONO
AUX
PRE EQ
IC4 (2/2)
IC4 (1/2)
BEAT CANCEL
CN8
+14V
PHONO (L)
GND
PHONO (R)
V REF
AUX (R)
AUX (L)
OSC. +B
OSC. GND
SIGNAL LINE
GND LINE
+B LINE
—B LINE

IC1 : μPC7805HF or AN7805F

Q1～4,32,37,43 : 2SA733(A)(Q,P) or 2SA933S(Q,R)
Q5～8,17,18 : 2SC1845(F,E)
Q9,10 : 2SA992 (F,E)
Q11,12 : 2SD1894*5
Q13,14 : 2SB1254*5
Q15,16 : 2SC4137
Q31 : 2SC2003(L,K)
Q33,38 : 2SD1266(Q,P)
Q39 : 2SC2878(B)
Q34～36,40, 44,45 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q41 : 2SD882(Q,P)
D1,2,25～27,31～33,46～54,57,58 : 1SS133 or HSS104
D3,4,11 : 1SS131 or HSS104A
D12 : RBV-402LFA
D13 : RD5.6ES(B2) or HZS5.6N (B2)
D14～22,29 : S5566B
D23,28 : RD13ES(B2) or HZS13N(B2)
D24 : RD4.7ES(B) or HZS4.7N(B)
D30 : RD5.1JS(B2) or HZS5.1S(B2)

IC4 : NJM4565D or M5218P

D1～4 : 1SS133 or HSS104

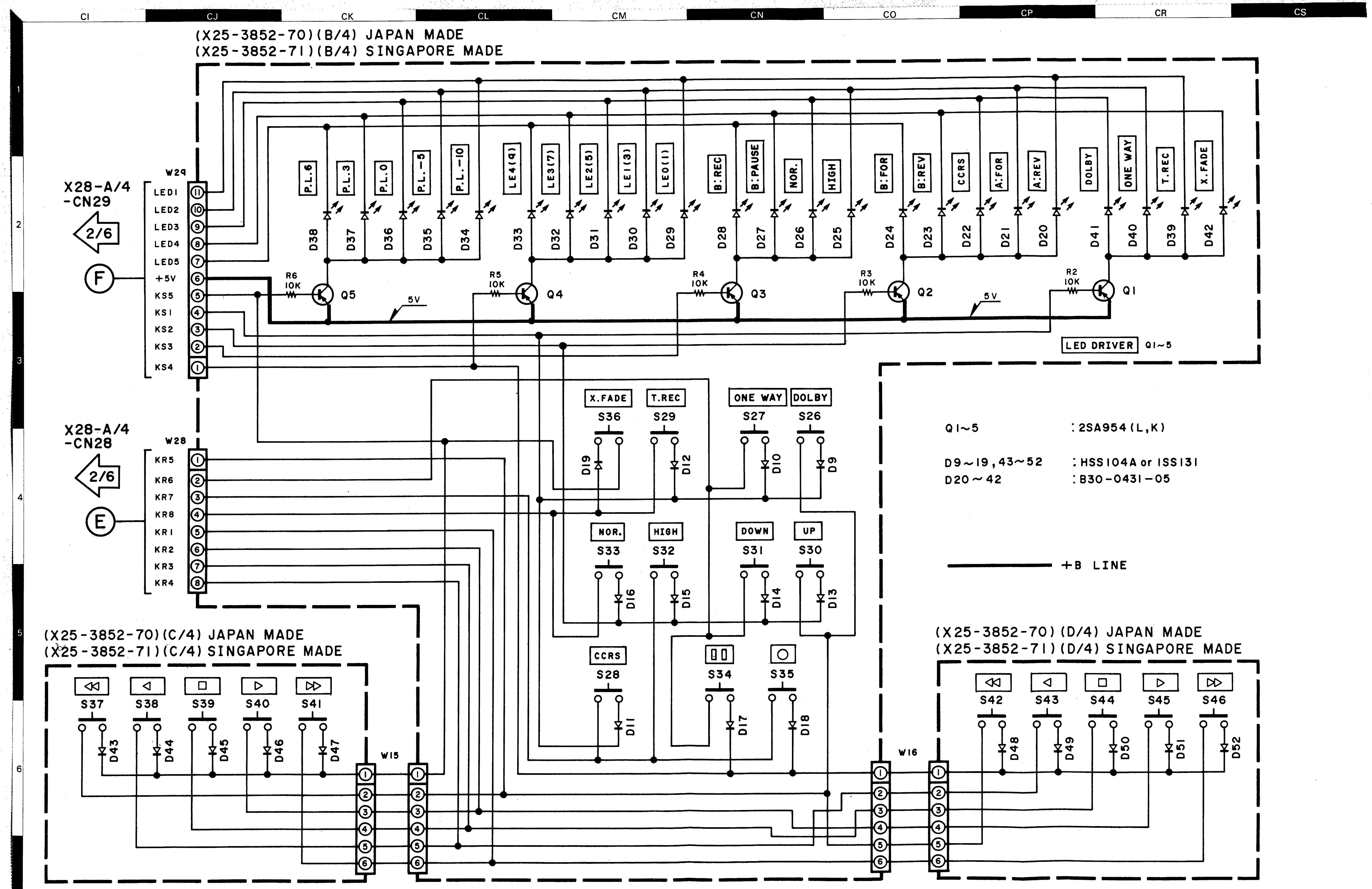
(X28-211X-XX) JAPAN MADE
(X28-212X-XX) SINGAPORE MADE

| Ref. No. / DESTINATION | | C1,2 | C9,10 | C15,16 |
|---|---|---|---|---|
| 2-71 | E,T | YES | 1500P | 10μ35 |
| 0-21 | X,M,Y | NO | 560P | 0.068 |

(X07-256X-XX) JAPAN MADE
(X07-257X-XX) SINGAPORE MADE

| Ref. No. / DESTINATION | | Q11,12 | Q13,14 | R11,12 | C23,24 | C105,106 | D55,56 | D57,58 | E3 | F1 | F2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-71 | E,T | 2SD1893*5 | 2SB1253*5 | 150 | 3300P | 3300μ50 | YES | NO | NO | NO | T0.8A |
| 0-21 | X,M,Y | 2SD1894*5 | 2SB1254*5 | 120 | 1000P | 3300μ42 | NO | YES | YES | YES | T1.6A |

| F3 | S1 | S2 | J1,4,7,8 | J3 | CN24 |
|---|---|---|---|---|---|
| YES | YES | NO | NO | YES | 2PIN |
| NO | NO | YES | YES | NO | 5PIN |


CI
CJ
CK
CL
CM
CN
CO
CP
CR
CS
1
2
3
4
5
6
7
(X25-3852-70)(B/4) JAPAN MADE
(X25-3852-71)(B/4) SINGAPORE MADE
X28-A/4
-CN29
2/6
F
W29
LED1
LED2
LED3
LED4
LED5
+5V
KS5
KS1
KS2
KS3
KS4
P.L.6
P.L.3
P.L.0
P.L.-5
P.L.-10
LE4(9)
LE3(7)
LE2(5)
LE1(3)
LE0(1)
B:REC
B:PAUSE
NOR.
HIGH
B:FOR
B:REV
CCRS
A:FOR
A:REV
DOLBY
ONE WAY
T.REC
X.FADE
D38
D37
D36
D35
D34
D33
D32
D31
D30
D29
D28
D27
D26
D25
D24
D23
D22
D21
D20
D41
D40
D39
D42
R6 10K
Q5
5V
R5 10K
Q4
R4 10K
Q3
R3 10K
Q2
5V
R2 10K
Q1
LED DRIVER Q1~5
X28-A/4
-CN28
2/6
E
W28
KR5
KR6
KR7
KR8
KR1
KR2
KR3
KR4
X.FADE
S36
D19
T.REC
S29
D12
ONE WAY
S27
D10
DOLBY
S26
D9
NOR.
S33
D16
HIGH
S32
D15
DOWN
S31
D14
UP
S30
D13
CCRS
S28
D11
S34
D17
S35
D18
Q1~5 : 2SA954(L,K)
D9~19,43~52 : HSS104A or 1SS131
D20~42 : B30-0431-05
+B LINE
(X25-3852-70)(C/4) JAPAN MADE
(X25-3852-71)(C/4) SINGAPORE MADE
S37
D43
S38
D44
S39
D45
S40
D46
S41
D47
W15
(X25-3852-70)(D/4) JAPAN MADE
(X25-3852-71)(D/4) SINGAPORE MADE
W16
S42
D48
S43
D49
S44
D50
S45
D51
S46
D52

RXD-24/24M

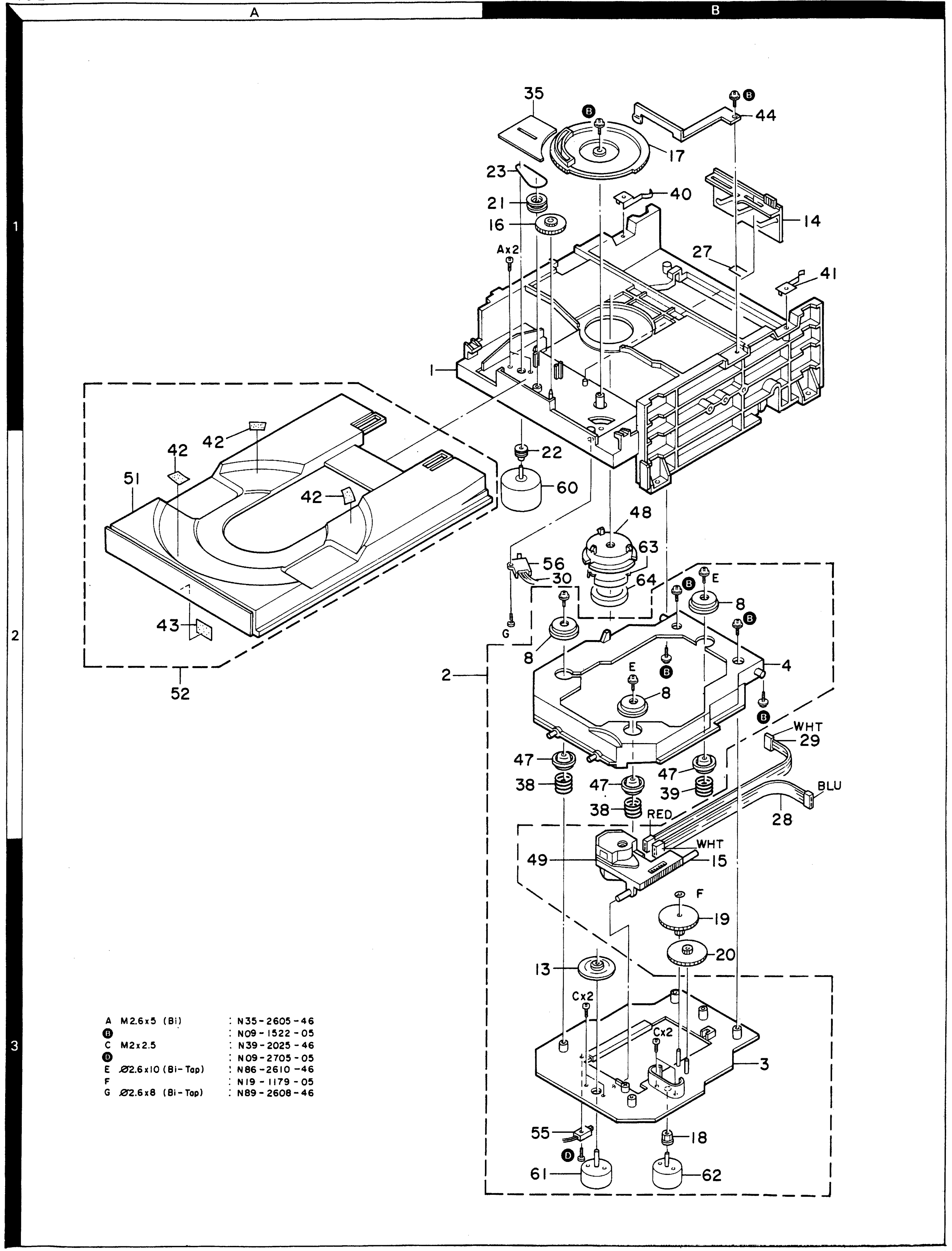
KENWOOD

Y09-3262-71

# RXD-24/24M

## <CD> EXPLODED VIEW (MECHANISM)

JAPAN MADE


A
B
1
2
3
35
17
44
23
21
16
40
14
Ax2
27
41
1
42
42
42
51
42
22
60
48
63
56
30
64
E
8
43
G
8
4
52
2
E
8
WHT
29
47
38
47
47
38
39
BLU
28
RED
WHT
49
15
F
19
20
13
Cx2
Cx2
3
55
18
61
62

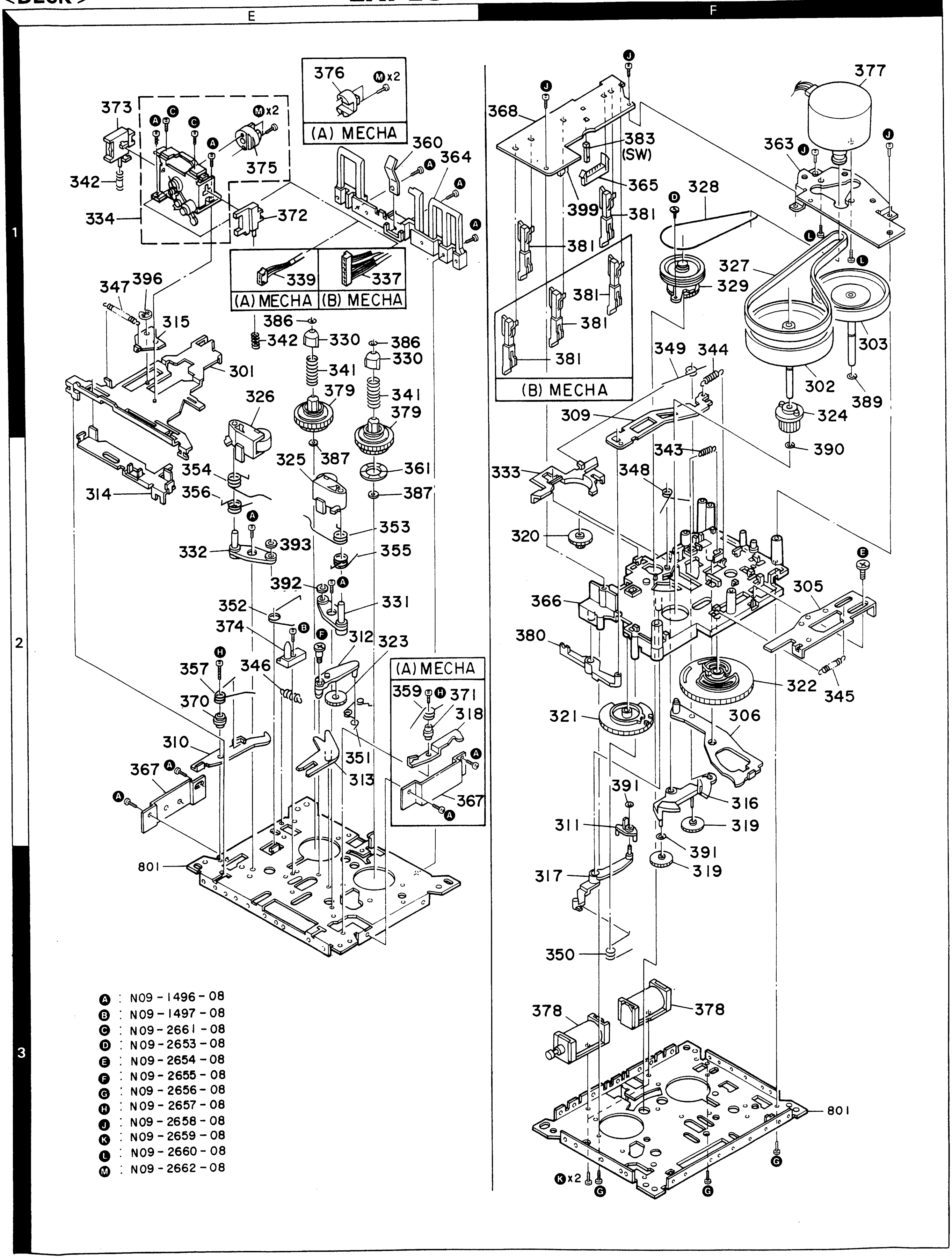
| | | |
|---|---|---|
| A | M2.6x5 (Bi) | : N35-2605-46 |
| B | | : N09-1522-05 |
| C | M2x2.5 | : N39-2025-46 |
| D | | : N09-2705-05 |
| E | Ø2.6x10 (Bi-Tap) | : N86-2610-46 |
| F | | : N19-1179-05 |
| G | Ø2.6x8 (Bi-Tap) | : N89-2608-46 |

**Parts with the exploded numbers larger than 700 are not supplied.**

# RXD-24/24M

<DECK>

## EXPLODED VIEW


E
F
1
2
3
376
Ⓜx2
(A) MECHA
373
Ⓐ
Ⓒ
Ⓒ
Ⓜx2
Ⓐ
375
342
334
360
Ⓐ
364
Ⓐ
Ⓐ
372
339
337
(A) MECHA
(B) MECHA
347
396
315
386
342
330
386
330
301
341
341
326
379
379
387
325
361
387
354
314
356
353
Ⓐ
332
393
355
392
Ⓐ
352
331
374
Ⓑ
Ⓕ
312
323
Ⓗ
357
346
(A) MECHA
359
Ⓗ
371
318
370
310
351
Ⓐ
367
Ⓐ
313
367
Ⓐ
Ⓐ
801
Ⓙ
Ⓙ
368
383
(SW)
365
399
381
381
381
381
381
381
(B) MECHA
377
363
Ⓙ
Ⓙ
Ⓓ
328
Ⓛ
Ⓛ
327
329
303
349
344
302
389
309
324
343
390
333
348
320
Ⓔ
305
366
380
322
345
321
306
391
316
311
319
391
319
317
350
378
378
801
Ⓚx2
Ⓖ
Ⓖ
Ⓖ

Ⓐ : N09 - 1496 - 08
Ⓑ : N09 - 1497 - 08
Ⓒ : N09 - 2661 - 08
Ⓓ : N09 - 2653 - 08
Ⓔ : N09 - 2654 - 08
Ⓕ : N09 - 2655 - 08
Ⓖ : N09 - 2656 - 08
Ⓗ : N09 - 2657 - 08
Ⓙ : N09 - 2658 - 08
Ⓚ : N09 - 2659 - 08
Ⓛ : N09 - 2660 - 08
Ⓜ : N09 - 2662 - 08

**Parts with the exploded numbers larger than 700 are not supplied.**

<CD>

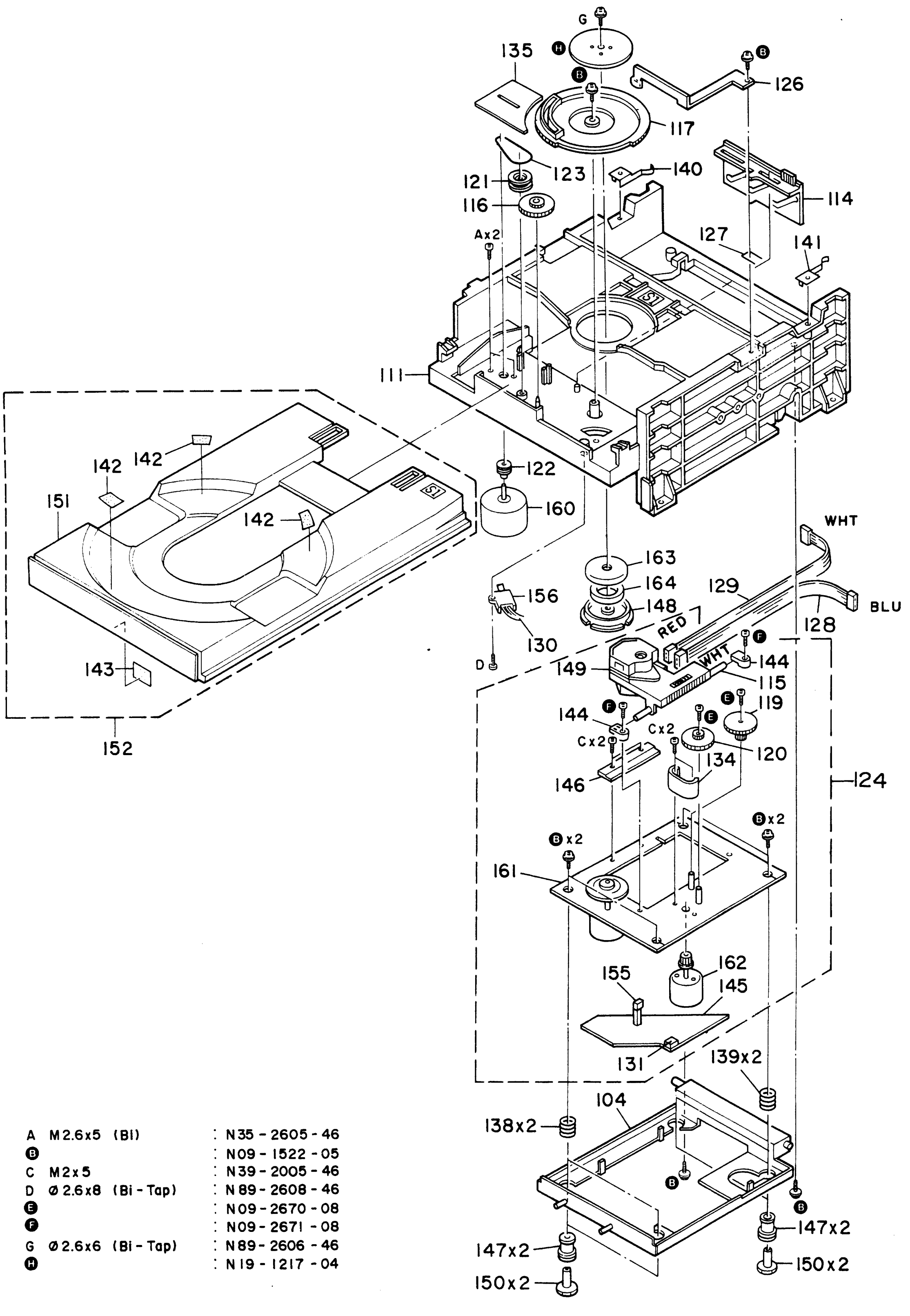
# EXPLODED VIEW (MECHANISM) SINGAPORE MADE

C D

1

2

3

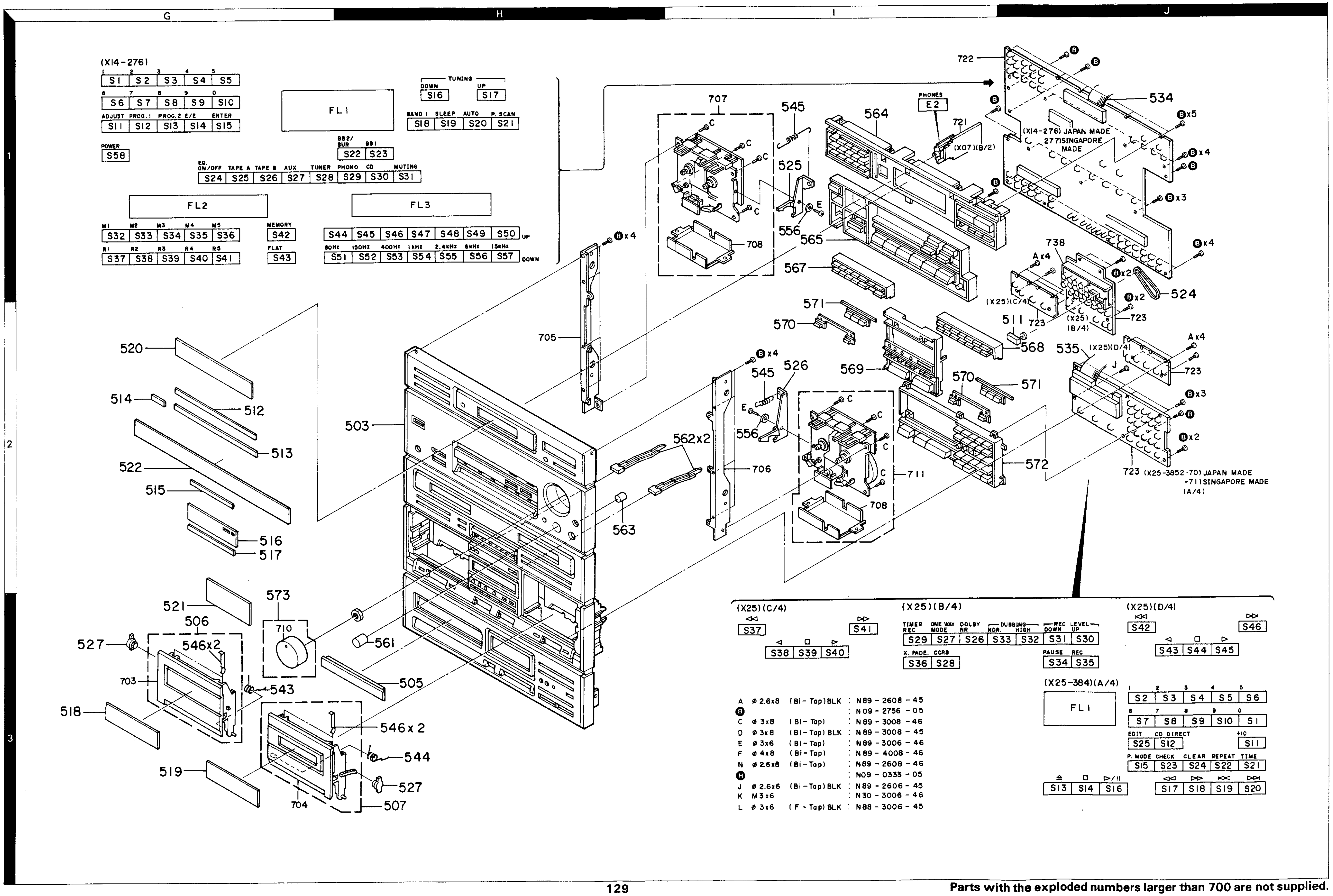

G
Ⓗ
135
Ⓑ
Ⓑ
126
117
123
140
121
116
114
A x 2
127
141
111
142
142
142
151
122
160
WHT
163
164
148
156
129
BLU
128
RED
WHT
130
D
Ⓕ
144
149
115
143
Ⓕ
119
144
Ⓔ
C x 2
C x 2
120
134
124
146
152
Ⓑ x 2
Ⓑ x 2
161
162
155
145
131
139 x 2
104
138 x 2
Ⓑ
Ⓑ
147 x 2
147 x 2
150 x 2
150 x 2

| | | |
|---|---|---|
| A | M2.6x5 (Bl) | : N35 - 2605 - 46 |
| Ⓑ | | : N09 - 1522 - 05 |
| C | M2x5 | : N39 - 2005 - 46 |
| D | Ø 2.6x8 (Bi - Tap) | : N89 - 2608 - 46 |
| Ⓔ | | : N09 - 2670 - 08 |
| Ⓕ | | : N09 - 2671 - 08 |
| G | Ø 2.6x6 (Bi - Tap) | : N89 - 2606 - 46 |
| Ⓗ | | : N19 - 1217 - 04 |

**Parts with the exploded numbers larger than 700 are not supplied**

# RXD-24/24M RXD-24/24M

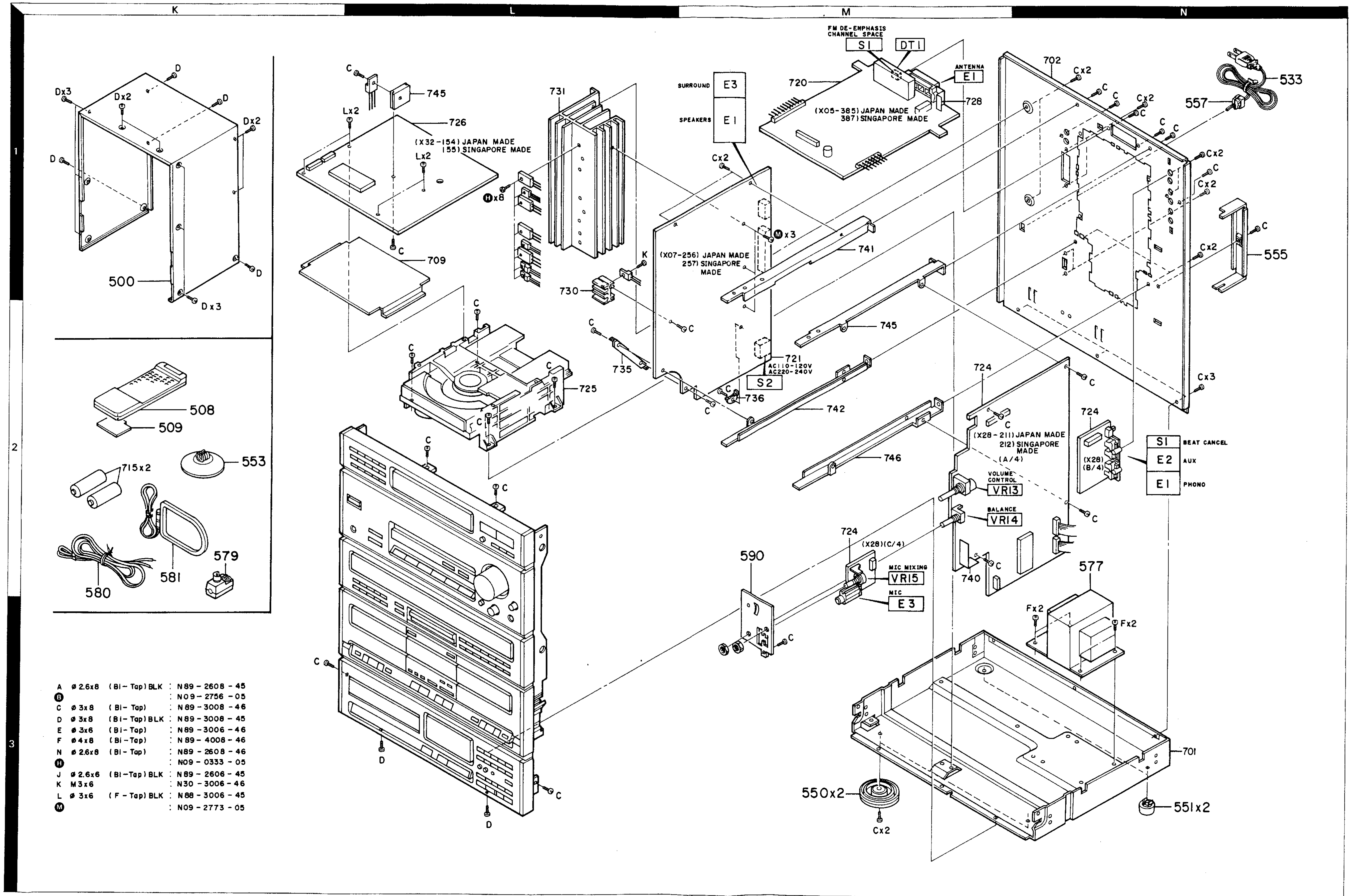
## EXPLODED VIEW (UNIT)


G
H
I
J
1
2
3
(X14-276)
1 2 3 4 5
S1 S2 S3 S4 S5
6 7 8 9 0
S6 S7 S8 S9 S10
ADJUST PROG.1 PROG.2 E/E ENTER
S11 S12 S13 S14 S15
POWER
S58
FL1
TUNING
DOWN UP
S16 S17
BAND 1 SLEEP AUTO P.SCAN
S18 S19 S20 S21
BB2/SUR BB1
S22 S23
EQ. ON/OFF TAPE A TAPE B AUX TUNER PHONO CD MUTING
S24 S25 S26 S27 S28 S29 S30 S31
FL2
FL3
M1 M2 M3 M4 M5
S32 S33 S34 S35 S36
R1 R2 R3 R4 R5
S37 S38 S39 S40 S41
MEMORY
S42
FLAT
S43
S44 S45 S46 S47 S48 S49 S50 UP
60Hz 150Hz 400Hz 1kHz 2.4kHz 6kHz 15kHz
S51 S52 S53 S54 S55 S56 S57 DOWN
722
534
Bx5
Bx4
Bx3
PHONES
E2
721
(X07)(B/2)
(X14-276) JAPAN MADE
277) SINGAPORE MADE
707
545
564
525
556
565
567
708
C
E
Bx4
705
738
Ax4
Bx2
524
(X25)(C/4)
511
723
(X25) (B/4)
568
571
570
569
535
(X25)(D/4)
J
Ax4
Bx3
Bx2
572
723 (X25-3852-70) JAPAN MADE
-71) SINGAPORE MADE
(A/4)
520
514
512
513
522
515
516
517
503
562x2
563
526
706
711
521
506
527
546x2
703
518
519
573
710
561
505
543
546 x 2
544
704
507
(X25)(C/4)
S37 S41
S38 S39 S40
(X25)(B/4)
TIMER REC
ONE WAY MODE
DOLBY NR
DUBBING NOR. HIGH
REC LEVEL DOWN UP
S29 S27 S26 S33 S32 S31 S30
X. FADE. CCRS
S36 S28
PAUSE REC
S34 S35
(X25)(D/4)
S42 S46
S43 S44 S45
(X25-384)(A/4)
FL1
1 2 3 4 5
S2 S3 S4 S5 S6
6 7 8 9 0
S7 S8 S9 S10 S1
EDIT CD DIRECT +10
S25 S12 S11
P. MODE CHECK CLEAR REPEAT TIME
S15 S23 S24 S22 S21
≜ □ ▷/II
S13 S14 S16
S17 S18 S19 S20

| | | | |
|---|---|---|---|
| A | ø 2.6x8 | (Bi-Tap) BLK | : N89-2608-45 |
| Ⓑ | | | : N09-2756-05 |
| C | ø 3x8 | (Bi-Tap) | : N89-3008-46 |
| D | ø 3x8 | (Bi-Tap) BLK | : N89-3008-45 |
| E | ø 3x6 | (Bi-Tap) | : N89-3006-46 |
| F | ø 4x8 | (Bi-Tap) | : N89-4008-46 |
| N | ø 2.6x8 | (Bi-Tap) | : N89-2608-46 |
| Ⓗ | | | : N09-0333-05 |
| J | ø 2.6x6 | (Bi-Tap) BLK | : N89-2606-45 |
| K | M3x6 | | : N30-3006-46 |
| L | ø 3x6 | (F-Tap) BLK | : N88-3006-45 |

**Parts with the exploded numbers larger than 700 are not supplied.**

# EXPLODED VIEW (UNIT)


K
L
M
N
1
2
3
Dx3
Dx2
D
Dx2
D
D
500
Dx3
D
508
509
715x2
553
580
581
579
C
745
Lx2
726
(X32-154) JAPAN MADE
155) SINGAPORE MADE
Lx2
Ⓗx8
C
709
731
730
735
C
725
C
C
C
D
D
C
SURROUND
E3
SPEAKERS
E1
Cx2
Ⓜx3
K
(X07-256) JAPAN MADE
257) SINGAPORE MADE
C
721
AC110-120V
AC220-240V
S2
736
C
741
745
742
746
FM DE-ENPHASIS
CHANNEL SPACE
S1
DT1
720
ANTENNA
E1
728
(X05-385) JAPAN MADE
387) SINGAPORE MADE
702
Cx2
C
Cx2
C
C
C
533
557
Cx2
C
Cx2
Cx2
555
C
Cx3
724
C
(X28-211) JAPAN MADE
212) SINGAPORE MADE
(A/4)
VOLUME CONTROL
VR13
BALANCE
VR14
724
(X28)
(B/4)
S1
BEAT CANCEL
E2
AUX
E1
PHONO
C
740
C
724
(X28)(C/4)
MIC MIXING
VR15
MIC
E3
590
C
577
Fx2
Fx2
701
550x2
Cx2
551x2

|  |  |  |  |
|---|---|---|---|
| A | ø 2.6x8 | (Bi-Tap) BLK | : N89-2608-45 |
| Ⓑ |  |  | : N09-2756-05 |
| C | ø 3x8 | (Bi-Tap) | : N89-3008-46 |
| D | ø 3x8 | (Bi-Tap) BLK | : N89-3008-45 |
| E | ø 3x6 | (Bi-Tap) | : N89-3006-46 |
| F | ø 4x8 | (Bi-Tap) | : N89-4008-46 |
| N | ø 2.6x8 | (Bi-Tap) | : N89-2608-46 |
| Ⓗ |  |  | : N09-0333-05 |
| J | ø 2.6x6 | (Bi-Tap) BLK | : N89-2606-45 |
| K | M3x6 |  | : N30-3006-46 |
| L | ø 3x6 | (F-Tap) BLK | : N88-3006-45 |
| Ⓜ |  |  | : N09-2773-05 |

**Parts with the exploded numbers larger than 700 are not supplied.**

# PARTS LIST

⁎ New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

| Ref. No. 参照番号 | Address 位置 | New Parts 新 | Parts No. 部品番号 | Description 部品名／規格 | Destination 仕向 | Remarks 備考 |
|---|---|---|---|---|---|---|
| **RXD-24/24M** | | | | | | |
| 500 | 1K | ⁎ | A01-1817-01 | METALLIC CABINET | | |
| 503 | 2H | ⁎ | A20-5934-01 | PANEL | ET | |
| 503 | 2H | ⁎ | A20-5935-01 | PANEL | XMY | |
| 505 | 3H | ⁎ | A29-0158-03 | PANEL(CD) | | |
| 506 | 3G | ⁎ | A53-1174-03 | CASSETTE HOLDER ASSY(A) | | |
| 507 | 3H | ⁎ | A53-1176-03 | CASSETTE HOLDER ASSY(B) | | |
| 508 | 2K | ⁎ | A70-0325-05 | REMOTE CONTROLLER ASSY(RC-1J) | XMY | |
| 508 | 2K | ⁎ | A70-0326-05 | REMOTE CONTROLLER ASSY(RC-M24) | ET | |
| 509 | 2K | | A09-0078-08 | BATTERY COVER(A70-0325-05) | XMY | |
| 509 | 2K | | A09-0091-08 | BATTERY COVER(A70-0326-05) | ET | |
| 511 | 2J | | B35-0035-05 | TAPE COUNTER | | |
| 512 | 2G | ⁎ | B03-2596-03 | DRESSING PLATE(AMP) | | |
| 513 | 2G | ⁎ | B03-2598-03 | DRESSING PLATE(AMP) | | |
| 514 | 2G | ⁎ | B03-2599-03 | DRESSING PLATE(AMP) | | |
| 515 | 2G | ⁎ | B03-2600-13 | DRESSING PLATE(GRAPHIC EQ) | | |
| 516 | 2G | ⁎ | B03-2602-03 | DRESSING PLATE(CASSETTE) | | |
| 517 | 2G | ⁎ | B03-2604-03 | DRESSING PLATE(CASSETTE) | | |
| 518 | 3G | ⁎ | B03-2605-13 | DRESSING PLATE(CASSETTE DOOR) | | |
| 519 | 3G | ⁎ | B03-2606-13 | DRESSING PLATE(CASSETTE DOOR) | | |
| 520 | 2G | ⁎ | B10-1058-03 | FRONT GLASS(TUNER) | | |
| 521 | 3G | ⁎ | B10-1059-03 | FRONT GLASS(CD) | | |
| 522 | 2G | ⁎ | B10-1060-03 | FRONT GLASS(GRAPHIC EQ) | | |
| - | | | B46-0094-03 | WARRANTY CARD | Y | |
| - | | | B46-0095-03 | WARRANTY CARD | Y | |
| - | | | B46-0096-13 | WARRANTY CARD | X | |
| - | | | B46-0122-13 | WARRANTY CARD | E | |
| - | | | B46-0143-03 | WARRANTY CARD | T | |
| - | | ⁎ | B50-9925-00 | INSTRUCTION MANUAL(ENGLISH) | | |
| - | | ⁎ | B50-9926-00 | INSTRUCTION MANUAL(FRENCH) | EM | |
| - | | ⁎ | B50-9927-00 | INSTRUCTION MANUAL(SPAN,CHIN) | M | |
| - | | ⁎ | B50-9928-00 | INSTRUCTION MANUAL(GERMAN) | E | |
| - | | ⁎ | B50-9929-00 | INSTRUCTION MANUAL(DUTCH,ITA) | E | |
| - | | | B58-0513-04 | CAUTION CARD (PRESET220-240) | Y | |
| - | | | B58-0803-13 | CAUTION CARD | E | |
| 524 | 2J | | D16-0189-04 | BELT | | |
| 525 | 1I | | D10-2215-14 | LEVER(EJECT) | | |
| 526 | 2I | | D10-2216-04 | LEVER(EJECT) | | |
| 527 | 3G,3H | | D39-0176-05 | DAMPER | | |
| ⚠ 533 | 1N | ⁎ | E30-2592-15 | AC POWER CORD | EM | |
| ⚠ 533 | 1N | ⁎ | E30-2593-15 | AC POWER CORD | T | |
| ⚠ 533 | 1N | ⁎ | E30-2594-15 | AC POWER CORD | X | |
| ⚠ 533 | 1N | ⁎ | E30-2605-05 | AC POWER CORD | Y | |
| 534 | 1J | ⁎ | E31-7408-05 | WIRING HARNESS | | |
| 535 | 2J | ⁎ | E31-7409-05 | WIRING HARNESS | | |
| 543 | 3G | | G01-2270-04 | TORSION COIL SPRING(CAT DOOR) | | |
| 544 | 3H | | G01-2271-04 | TORSION COIL SPRING(CAT DOOR) | | |
| 545 | 1I,2I | | G01-2272-04 | EXTENSION SPRING(CAT DOOR) | | |
| 546 | 3G,3H | ⁎ | G02-0943-04 | FLAT SPRING | | |
| - | | ⁎ | H01-8668-04 | ITEM CARTON CASE | ET | |
| - | | ⁎ | H01-8670-04 | ITEM CARTON CASE | ET | S |
| - | | ⁎ | H01-8762-04 | ITEM CARTON CASE | XMY | |
| - | | ⁎ | H01-8763-04 | ITEM CARTON CASE | XMY | S |

E: Scandinavia & Europe K: USA P: Canada W: Europe
Y: PX(Far East, Hawaii) T: England M: Other Areas
Y: AAFES(Europe) X: Australia

**J: Japan made**
**S: Singapore made**

⚠ indicates safety critical components.

# RXD-24/24M

## PARTS LIST

* New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

| Ref. No. 参照番号 | Address 位置 | New Parts 新 | Parts No. 部品番号 | Description 部品名／規格 | Desti-nation 仕向 | Re-marks 備考 |
|---|---|---|---|---|---|---|
| - | | * | H10-3923-02 | POLYSTYRENE FOAMED FIXTURE | | |
| - | | * | H10-3924-02 | POLYSTYRENE FOAMED FIXTURE | | |
| - | | * | H10-3925-02 | POLYSTYRENE FOAMED FIXTURE | | S |
| - | | * | H10-3926-02 | POLYSTYRENE FOAMED FIXTURE | | S |
| - | | * | H12-2086-04 | PACKING FIXTURE | | |
| - | | * | H12-2087-04 | PACKING FIXTURE | | S |
| - | | | H25-0181-04 | PROTECTION BAG (150X260X0.05) | | |
| - | | | H25-0232-04 | PROTECTION BAG (235X350X0.03) | | |
| - | | * | H25-0377-04 | PROTECTION BAG | ETXY | |
| - | | * | H25-0388-04 | PROTECTION BAG | M | |
| 550 | 3M | | J02-0366-15 | FOOT | ET | |
| 550 | 3M | | J02-1002-05 | FOOT | XMY | |
| 551 | 3N | | J02-0370-05 | FOOT | ET | |
| 551 | 3N | | J02-1013-05 | FOOT | XMY | |
| 553 | 2K | | J19-2815-04 | ANTENNA HOLDER | | |
| 555 | 1N | * | J21-5545-04 | MOUNTING HARDWARE | | S |
| 555 | 1N | * | J21-5595-04 | MOUNTING HARDWARE | | |
| 556 | 1I,2I | | J31-0498-04 | COLLAR(EJECT) | | |
| ⚠ 557 | 1N | | J42-0083-05 | POWER CORD BUSHING | | |
| - | | | J61-0307-05 | WIRE BAND | | |
| 561 | 3H | | K29-3663-04 | KNOB(BALANCE) | | |
| 562 | 2I | | K29-3737-04 | KNOB(EJECT) | | |
| 563 | 2H | | K29-3741-04 | KNOB(MIC MIXING) | | |
| 564 | 1I | * | K29-3838-02 | KNOB(TUNER) | | |
| 565 | 1I | * | K29-3839-02 | KNOB(AMP) | | |
| 567 | 1I | * | K29-3840-03 | KNOB(GRAPHIC EQ LEFT) | | |
| 568 | 2J | * | K29-3841-03 | KNOB(GRAPHIC EQ RIGHT) | | |
| 569 | 2J | * | K29-3866-02 | KNOB(CASSETTE CENTER) | | |
| 570 | 2I | * | K29-3843-03 | KNOB(CASSETTE FF/REW) | | |
| 571 | 2I,2J | * | K29-3844-03 | KNOB(CASSETTE STOP/PLAY) | | |
| 572 | 2J | * | K29-3845-02 | KNOB(CD PLAYER) | | |
| 573 | 3G | * | K29-3849-04 | KNOB(VOLUME) | | |
| ⚠ 577 | 2N | * | L07-0029-05 | POWER TRANSFORMER | E | |
| ⚠ 577 | 2N | * | L07-0030-05 | POWER TRANSFORMER | XMY | |
| ⚠ 577 | 2N | * | L07-0072-05 | POWER TRANSFORMER | T | |
| A | | | N89-2608-45 | BINDING HEAD TAPTITE SCREW | | |
| B | | * | N09-2756-05 | TAPTITE SCREW (2.6X10) | | |
| C | | | N89-3008-46 | BINDING HEAD TAPTITE SCREW | | |
| D | | | N89-3008-45 | BINDING HEAD TAPTITE SCREW | | |
| E | | | N86-3006-46 | BINDING HEAD TAPTITE SCREW | | |
| F | | | N89-4008-46 | BINDING HEAD TAPTITE SCREW | | |
| 579 | 2K | | T90-0177-05 | ANTENNA ADAPTOR | ET | |
| 580 | 2K | | T90-0175-05 | T TYPE ANTENNA | | S |
| 580 | 2K | | T90-0176-05 | T TYPE ANTENNA | | |
| 581 | 2K | | T90-0173-05 | LOOP ANTENNA | | J |
| 581 | 2K | | T90-0174-05 | LOOP ANTENNA | | |
| **TUNER UNIT (X05-38xx-xx)** | | | | | | |
| C2 | | | CE04KW1C470M | ELECTRO 47UF 16WV | | |
| C3 | | | CF92FV1H273J | MF 0.027UF J | | |
| C4 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C5 | | | CE04KW1C470M | ELECTRO 47UF 16WV | | |
| C6 ,7 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C8 ,9 | | | CK45FF1H223Z | CERAMIC 0.022UF Z | ET | |

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|---|---|---|---|---|---|---|---|---|
| C9 | | | CK45FF1H223Z | CERAMIC | 0.022UF | Z | XMY | |
| C10 | | | C91-0085-05 | CERAMIC | 0.022UF | N | ET | |
| C11 | | | CK45FF1H223Z | CERAMIC | 0.022UF | Z | XMY | |
| C11 -14 | | | CK45FF1H223Z | CERAMIC | 0.022UF | Z | ET | |
| C15 | | | C91-0085-05 | CERAMIC | 0.022UF | N | ET | |
| C16 | | | CK45FF1H223Z | CERAMIC | 0.022UF | Z | | |
| C17 | | | CE04KW1H2R2M | ELECTRO | 2.2UF | 50WV | | |
| C18 | | | CE04KW1V4R7M | ELECTRO | 4.7UF | 35WV | | |
| C19 | | | CK45FF1H223Z | CERAMIC | 0.022UF | Z | | |
| C20 | | | CE04KW1H3R3M | ELECTRO | 3.3UF | 50WV | | |
| C21 | | | CF92FV1H103J | MF | 0.010UF | J | | |
| C22 | | | CK45FF1H223Z | CERAMIC | 0.022UF | Z | | |
| C23 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C24 | | | CK45FF1H223Z | CERAMIC | 0.022UF | Z | | |
| C25 | | | CF92FV1H153J | MF | 0.015UF | J | | |
| C26 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C27 | | | CE04KW1HR47M | ELECTRO | 0.47UF | 50WV | | |
| C28 | | | C91-0769-05 | CERAMIC | 0.01UF | M | | |
| C29 ,30 | | | CK45FF1H103Z | CERAMIC | 0.010UF | Z | | |
| C31 | | | CC45FSL1H101J | CERAMIC | 100PF | J | | |
| C32 | | | CK45FF1H103Z | CERAMIC | 0.010UF | Z | | |
| C33 | | | CE04KW1C470M | ELECTRO | 47UF | 16WV | | |
| C34 | | | CK45FB1H471K | CERAMIC | 470PF | K | ET | |
| C35 | | | CC45FSL1H121J | CERAMIC | 120PF | J | ET | |
| C36 | | | CC45FSL1H271J | CERAMIC | 270PF | J | ET | |
| C37 | | | CF92FV1H152J | MF | 1500PF | J | ET | |
| C38 | | | CF92FV1H132J | MF | 1300PF | J | ET | |
| C39 | | | CC93FCH1H471J | CERAMIC | 470PF | J | | |
| C40 | | | CE04KW1H2R2M | ELECTRO | 2.2UF | 50WV | | |
| C41 | | | CE04KW1H3R3M | ELECTRO | 3.3UF | 50WV | | |
| C42 | | | CE04KW1HR47M | ELECTRO | 0.47UF | 50WV | | |
| C43 | | | CF92FV1H473J | MF | 0.047UF | J | | |
| C44 | | | CK45FB1H471K | CERAMIC | 470PF | K | | |
| C45 | | | C91-0769-05 | CERAMIC | 0.01UF | M | | |
| C46 ,47 | | | CC45FSL1H221J | CERAMIC | 220PF | J | | |
| C48 | | | CE04KW1C101M | ELECTRO | 100UF | 16WV | | |
| C49 | | | CC45FSL1H680J | CERAMIC | 68PF | J | ET | |
| C50 ,51 | | | CE04KW1H010M | ELECTRO | 1.0UF | 50WV | | |
| C52 ,53 | | | CF92FV1H752J | MF | 7500PF | J | MY | |
| C54 ,55 | | | CF92FV1H153J | MF | 0.015UF | J | | |
| C56 | | | CK45FF1H103Z | CERAMIC | 0.010UF | Z | | |
| C57 | | | CE04KW1A470M | ELECTRO | 47UF | 10WV | | |
| C58 ,59 | | | CC45FCH1H220J | CERAMIC | 22PF | J | | |
| C60 -62 | | | CC45FSL1H101J | CERAMIC | 100PF | J | | |
| C63 | | | CK45FF1H103Z | CERAMIC | 0.010UF | Z | | |
| C200 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C201 | | | CE04KW0J222M | ELECTRO | 2200UF | 6.3WV | | |
| C202,203 | | | CE04KW1H010M | ELECTRO | 1.0UF | 50WV | | |
| C204 | | | CE04KW1H101M | ELECTRO | 100UF | 50WV | | |
| E1 | 1M | | E20-0321-05 | LOCK TERMINAL BOARD(ANTENNA) | | | ET | |
| E1 | 1M | | E20-0476-05 | LOCK TERMINAL BOARD(ANTENNA) | | | XMY | |
| CF1 ,2 | | | L72-0531-05 | CERAMIC FILTER | | | XMY | |
| CF1 ,2 | | | L72-0536-05 | CERAMIC FILTER | | | ET | |
| CF3 | | | L72-0096-05 | CERAMIC FILTER | | | | |

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# RXD-24/24M

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|---|---|---|---|---|---|---|
| L1 | | | L40-1091-17 | SMALL FIXED INDUCTOR | ET | |
| L2 | | ⁎ | L39-0192-05 | COMBINATION COIL | | |
| L3 | | ⁎ | L39-0193-05 | COMBINATION COIL | ET | |
| L4 | | | L30-0454-15 | AM IFT | | |
| L5 | | | L40-1021-14 | SMALL FIXED INDUCTOR(1.0MH,K) | | |
| L6 | | ⁎ | L30-0439-25 | FM IFT | | |
| L7 | | | L40-5625-29 | SMALL FIXED INDUCTOR(5.6MH,J) | ET | |
| L8 | | | L40-6825-29 | SMALL FIXED INDUCTOR(6.8MH,J) | ET | |
| L9 | | | L40-1091-17 | SMALL FIXED INDUCTOR | XMY | |
| X1 | | | L77-1122-05 | CRYSTAL RESONATOR(7.2MHZ) | | |
| R3 | | | RD14GB2E221J | FL-PROOF RD 220 J 1/4W | | |
| R6 | | | RD14GB2E101J | FL-PROOF RD 100 J 1/4W | | |
| R10 | | | RD14GB2E101J | FL-PROOF RD 100 J 1/4W | | |
| R36 | | | RD14GB2E101J | FL-PROOF RD 100 J 1/4W | | |
| R51 | | | RD14GB2E101J | FL-PROOF RD 100 J 1/4W | | |
| R69 | | | RS14KB3D221J | FL-PROOF RS 220 J 2W | | |
| VR1 | | | R12-3128-05 | TRIM POT. 22K | | |
| VR2 | | | R12-1089-05 | TRIM POT. 4.7K | | |
| VR3 | | | R12-5060-05 | TRIMMING POT.(220K) | ET | |
| S1 | 1M | | S31-2094-05 | SLIDE SWITCH (DEEMPHASIS) | MY | |
| D1 -9 | | | HSS104 | DIODE | ET | |
| D1 -9 | | | 1SS133 | DIODE | ET | |
| D1 ,2 | | | HSS104 | DIODE | XMY | |
| D1 ,2 | | | 1SS133 | DIODE | XMY | |
| D9 | | | HSS104 | DIODE | XMY | |
| D9 | | | 1SS133 | DIODE | XMY | |
| D10 | | | HZS5.1N(B2) | ZENER DIODE | | |
| D10 | | | RD5.1ES(B2) | ZENER DIODE | | |
| D11 ,12 | | | HSS104 | DIODE | | |
| D11 ,12 | | | 1SS133 | DIODE | | |
| D200 | | | HZS5.6N(B2) | ZENER DIODE | | |
| D200 | | | RD5.6ES(B2) | ZENER DIODE | | |
| D201 | | | HSS104 | DIODE | | |
| D201 | | | 1SS133 | DIODE | | |
| IC1 | | | LA1265 | IC(FM/AM TUNER) | | |
| IC2 | | | AN7470 | IC(FM MPX) | | |
| IC3 | | | LM7001 | IC(PLL FREQUENCY SYNTHESIZER) | | |
| Q1 | | | 2SC1923(R,O) | TRANSISTOR | | |
| Q2 | | | 2SK163(L,M) | FET | ET | |
| Q2 | | | 2SK364(GR,BL) | FET | ET | |
| Q3 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q3 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q4 | | | 2SC1845(F,E) | TRANSISTOR | | |
| Q5 -7 | | | 2SC1740S(Q,R) | TRANSISTOR | ET | |
| Q5 -7 | | | 2SC945(A)(Q,P) | TRANSISTOR | ET | |
| Q8 | | | 2SA733(A)(Q,P) | TRANSISTOR | XMY | |
| Q8 | | | 2SA933S(Q,R) | TRANSISTOR | XMY | |
| Q8 -10 | | | 2SA733(A)(Q,P) | TRANSISTOR | ET | |
| Q8 -10 | | | 2SA933S(Q,R) | TRANSISTOR | ET | |
| Q10 | | | 2SA733(A)(Q,P) | TRANSISTOR | XMY | |
| Q10 | | | 2SA933S(Q,R) | TRANSISTOR | XMY | |
| Q11 ,12 | | | 2SC1740S(Q,R) | TRANSISTOR | MY | |
| Q11 ,12 | | | 2SC945(A)(Q,P) | TRANSISTOR | MY | |

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|---|---|---|---|---|---|---|
| DT1 | 1M | * | W02-1041-05 | FM FRONT-END ASSY | ET | |
| DT1 | 1M | * | W02-1042-05 | FM FRONT-END ASSY | XMY | |
| **MAIN AMPLIFIRE UNIT (X07-25xx-xx)** | | | | | | |
| C1 ,2 | | | CE04KW1V4R7M | ELECTRO 4.7UF 35WV | | |
| C3 ,4 | | | CF92FV1H102J | MF 1000PF J | | |
| C5 ,6 | | | CC45FSL1H680J | CERAMIC 68PF J | | |
| C7 ,8 | | | CE04KW1A101M | ELECTRO 100UF 10WV | | |
| C9 ,10 | | | CC45FSL1H101J | CERAMIC 100PF J | | |
| C11 ,12 | | | CC45FSL1H680J | CERAMIC 68PF J | | |
| C13 | | | CE04KW0J471M | ELECTRO 470UF 6.3WV | | |
| C15 ,16 | | | CC45FSL1H221J | CERAMIC 220PF J | | |
| C17 ,18 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C19 ,20 | | | CK45FB1H332K | CERAMIC 3300PF K | | |
| C21 ,22 | | | CF92FV1H473J | MF 0.047UF J | | |
| C23 ,24 | | | CK45FB1H102K | CERAMIC 1000PF K | XMY | |
| C23 ,24 | | | CK45FB1H332K | CERAMIC 3300PF K | ET | |
| C101 | | | CE04KW1H470M | ELECTRO 47UF 50WV | | |
| C102 | | | CE04KW1H101M | ELECTRO 100UF 50WV | | |
| C103,104 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C105,106 | | | C90-1745-05 | ELECTRO 3300UF 42WV | XMY | |
| C105,106 | | | C90-1780-05 | ELECTRO 4700UF 50WV | ET | |
| C107 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C108 | | | CE04KW1V222M | ELECTRO 2200UF 35WV | | |
| C109 | | | CE04KW1C220M | ELECTRO 22UF 16WV | | |
| C110 | | | CK45FB1H102K | CERAMIC 1000PF K | | |
| C111,112 | | | CE04KW1C470M | ELECTRO 47UF 16WV | | |
| C113 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C114,115 | | | CF92FV1H103J | MF 0.010UF J | | |
| C116,117 | | | CE04KW1C470M | ELECTRO 47UF 16WV | | |
| C118 | | | CE04KW1H2R2M | ELECTRO 2.2UF 50WV | | |
| C119 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C120 | | | CE04KW1H331M | ELECTRO 330UF 50WV | | |
| C121,122 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C123 | | | CE04KW1C222M | ELECTRO 2200UF 16WV | | |
| C124 | | | CE04KW1C102M | ELECTRO 1000UF 16WV | | |
| C130 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C131 | | | CE04KW1V100M | ELECTRO 10UF 35WV | | |
| C133 | | | CE04KW0J221M | ELECTRO 220UF 6.3WV | | |
| ⚠ C134 | | | C91-0647-05 | CERAMIC 0.01UF P | | |
| C135 | | | CK45FB1H152K | CERAMIC 1500PF K | | |
| E1 | 1M | | E20-0459-05 | LOCK TERMINAL BOARD(SPEAKERS) | | |
| E2 | 1I | | E11-0198-05 | PHONE JACK (PHONES) | | |
| E3 | 1M | | E13-0254-05 | PHONO JACK (2P)(SURROUND) | XMY | |
| ⚠ F1 ,2 | | | F05-1623-05 | FUSE (SEMKO) (250V T1.6A) | XMY | |
| ⚠ F2 | | | F05-8013-05 | FUSE (SEMKO) (250V T0.8A) | ET | |
| ⚠ F3 | | | F06-1022-05 | FUSE (SEMKO) (250V T1A) | ET | |
| - | | | J13-0054-05 | FUSE CLIP | | |
| ⚠ L1 | | | L79-0785-05 | LINE FILTER | | |
| C | | | N89-3008-46 | BINDING HEAD TAPTITE SCREW | | |
| D | | | N89-3008-45 | BINDING HEAD TAPTITE SCREW | | |
| H | | | N09-0333-05 | TAPPING SCREW (3X12) | | |
| K | | | N30-3006-46 | PAN HEAD MACHINE SCREW | | |

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# RXD-24/24M

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|---|---|---|---|---|---|---|---|
| | M | | * | N09-2773-05 | TAPTITE SCREW (3.5 X8) | | |
| | CP1 ,2 | | | R90-0187-05 | MULTI-COMP 0.22X2 K 5W | | |
| | R13 -16 | | | RD14AB2E221J | FL-PROOF RD 220 J 1/4W | | |
| | R17 ,18 | | * | RD14AB2E392J | FL-PROOF RD 3.9K J 1/4W | | |
| | R19 ,20 | | | RD14AB2E271J | FL-PROOF RD 270 J 1/4W | | |
| | R31 -34 | | | RD14AB2E470J | FL-PROOF RD 47 J 1/4W | | |
| | R39 ,40 | | | RS14DB3D100J | FL-PROOF RS 10 J 2W | | |
| | R41 ,42 | | | RS14DB3A561J | FL-PROOF RS 560 J 1W | | |
| | R101 | | | RD14AB2E470J | FL-PROOF RD 47 J 1/4W | | |
| | R102 | | | RD14AB2E101J | FL-PROOF RD 100 J 1/4W | | |
| | R111 | | | RD14AB2E101J | FL-PROOF RD 100 J 1/4W | | |
| | R112 | | | RS14DB3D332J | FL-PROOF RS 3.3K J 2W | | |
| | R117,118 | | | RS14DB3D820J | FL-PROOF RS 82 J 2W | | |
| | R120 | | | RD14AB2E100J | FL-PROOF RD 10 J 1/4W | | |
| | K1 | | | S51-2092-05 | MAGNETIC RELAY | | |
| ⚠ | S1 | | | S31-2136-05 | SLIDE SWITCH (POWER TYPE) | ET | |
| ⚠ | S2 | 2M | | S31-2131-05 | SLIDE SWITCH (VOLTAGE) | XMY | |
| | D1 ,2 | | | HSS104 | DIODE | | |
| | D1 ,2 | | | 1SS133 | DIODE | | |
| | D3 ,4 | | | HSS104A | DIODE | | |
| | D3 ,4 | | | 1SS131 | DIODE | | |
| | D11 | | | HSS104A | DIODE | | |
| | D11 | | | 1SS131 | DIODE | | |
| | D12 | | | RBV-402LFA | DIODE | | |
| | D13 | | | HZS5.6N(B2) | ZENER DIODE | | |
| | D13 | | | RD5.6ES(B2) | ZENER DIODE | | |
| | D14 -22 | | | S5566B | DIODE | | |
| | D23 | | | HZS13N(B2) | ZENER DIODE | | |
| | D23 | | | RD13ES(B2) | ZENER DIODE | | |
| | D24 | | | HZS4.7N(B) | ZENER DIODE | | |
| | D24 | | | RD4.7ES(B) | ZENER DIODE | | |
| | D25 -27 | | | HSS104 | DIODE | | |
| | D25 -27 | | | 1SS133 | DIODE | | |
| | D28 | | | HZS13N(B2) | ZENER DIODE | | |
| | D28 | | | RD13ES(B2) | ZENER DIODE | | |
| | D29 | | | S5566B | DIODE | | |
| | D30 | | | HZS5.1S(B2) | ZENER DIODE | | |
| | D30 | | | RD5.1JS(B2) | ZENER DIODE | | |
| | D31 -33 | | | HSS104 | DIODE | | |
| | D31 -33 | | | 1SS133 | DIODE | | |
| | D36 -41 | | | HSS104 | DIODE | | |
| | D36 -41 | | | 1SS133 | DIODE | | |
| | D46 -54 | | | HSS104 | DIODE | XMY | |
| | D46 -54 | | | 1SS133 | DIODE | XMY | |
| | D46 -56 | | | HSS104 | DIODE | ET | |
| | D46 -56 | | | 1SS133 | DIODE | ET | |
| | D57 ,58 | | | HSS104 | DIODE | XMY | |
| | D57 ,58 | | | 1SS133 | DIODE | XMY | |
| | IC1 | | | AN7805F | IC(VOLTAGE REGULATOR/ +5V) | | |
| | IC1 | | | UPC7805HF | IC(VOLTAGE REGULATOR/ +5V) | | |
| | Q1 -4 | | | 2SA733(A)(Q,P) | TRANSISTOR | | |
| | Q1 -4 | | | 2SA933S(Q,R) | TRANSISTOR | | |
| | Q5 -8 | | | 2SC1845(F,E) | TRANSISTOR | | |

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|---|---|---|---|---|---|---|
| Q9 ,10 | | | 2SA992(F,E) | TRANSISTOR | | |
| ⚠ Q11 ,12 | | | 2SD1893*5 | TRANSISTOR | ET | |
| ⚠ Q11 ,12 | | | 2SD1894*5 | TRANSISTOR | XMY | |
| ⚠ Q13 ,14 | | | 2SB1253*5 | TRANSISTOR | ET | |
| ⚠ Q13 ,14 | | | 2SB1254*5 | TRANSISTOR | XMY | |
| Q15 ,16 | | | 2SC4137 | TRANSISTOR | | |
| Q17 ,18 | | | 2SC1845(F,E) | TRANSISTOR | | |
| Q31 | | | 2SC2003(L,K) | TRANSISTOR | | |
| Q32 | | | 2SA733(A)(Q,P) | TRANSISTOR | | |
| Q32 | | | 2SA933S(Q,R) | TRANSISTOR | | |
| Q33 | | | 2SD1266(Q,P) | TRANSISTOR | | |
| Q34 -36 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q34 -36 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q37 | | | 2SA733(A)(Q,P) | TRANSISTOR | | |
| Q37 | | | 2SA933S(Q,R) | TRANSISTOR | | |
| Q38 | | | 2SD1266(Q,P) | TRANSISTOR | | |
| Q39 | | | 2SC2878(B) | TRANSISTOR | | |
| Q40 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q40 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q41 | | | 2SD882(Q,P) | TRANSISTOR | | |
| Q42 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q43 | | | 2SA733(A)(Q,P) | TRANSISTOR | | |
| Q43 | | | 2SA933S(Q,R) | TRANSISTOR | | |
| Q44 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q44 ,45 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| **DISPLAY UNIT (X14-27xx-xx)** | | | | | | |
| D20 | | | B30-1223-05 | LED(LN21CPH(V)-C) | | |
| D21 -30 | | | B30-1012-05 | LED(SLP-981C-50) | | |
| D53 -59 | | | B30-1223-05 | LED(LN21CPH(V)-C) | | |
| C1 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C2 | | | CE04JW1E3R3M | ELECTRO 3.3UF 25WV | | |
| C3 | | * | CC93FCH1H102J | CERAMIC 1000PF J | | |
| C4 | | | CE04JW1E3R3M | ELECTRO 3.3UF 25WV | | |
| C5 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C6 | | | CE04KW1A101M | ELECTRO 100UF 10WV | | |
| C7 ,8 | | | CC45FCH1H330J | CERAMIC 33PF J | | |
| C9 ,10 | | | CE04JW1E3R3M | ELECTRO 3.3UF 25WV | | |
| C11 | | * | CC93FCH1H102J | CERAMIC 1000PF J | | |
| C12 | | | CE04KW1A101M | ELECTRO 100UF 10WV | | |
| C13 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C14 -18 | | | CC45FSL1H470J | CERAMIC 47PF J | | |
| C19 ,20 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C21 | | | C91-0769-05 | CERAMIC 0.01UF M | | |
| C22 ,23 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C24 | | | C91-0769-05 | CERAMIC 0.01UF M | | |
| C25 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| L1 -4 | | | L40-1011-17 | SMALL FIXED INDUCTOR(100UH,K) | | |
| X1 | | | L77-1176-05 | CRYSTAL RESONATOR(4.19MHZ) | | |
| X2 | | | L78-0244-05 | RESONATOR(4.0MHZ) | | |
| CP1 | | | R90-0492-05 | MULTI-COMP 100KX8 J 1/6W | | |
| CP2 | | | R90-0482-05 | MULTI-COMP 100KX4 J 1/6W | | |
| CP3 ,4 | | | R90-0203-05 | MULTI-COMP 100KX5 J 1/6W | | |
| CP5 ,6 | | | R90-0426-05 | MULTI-COMP 100KX6 J 1/6W | | |

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|---|---|---|---|---|---|---|
| S1 -58 | 1G,1H | | S40-1064-05 | PUSH SWITCH | | |
| D1 -10 | | | HSS104A | DIODE | | |
| D1 -10 | | | 1SS131 | DIODE | | |
| D12 ,13 | | | HSS104A | DIODE | MY | |
| D12 ,13 | | | 1SS131 | DIODE | MY | |
| D13 | | | HSS104A | DIODE | ETX | |
| D13 | | | 1SS131 | DIODE | ETX | |
| D14 | | | HZS8.2N(B2) | ZENER DIODE | | |
| D14 | | | RD8.2ES(B2) | ZENER DIODE | | |
| D15 -17 | | | HSS104A | DIODE | MY | |
| D15 -17 | | | 1SS131 | DIODE | MY | |
| D15 -19 | | | HSS104A | DIODE | X | |
| D15 -19 | | | 1SS131 | DIODE | X | |
| D15 ,16 | | | HSS104A | DIODE | ET | |
| D15 ,16 | | | 1SS131 | DIODE | ET | |
| D18 ,19 | | | HSS104A | DIODE | ET | |
| D18 ,19 | | | 1SS131 | DIODE | ET | |
| D19 | | | HSS104A | DIODE | MY | |
| D19 | | | 1SS131 | DIODE | MY | |
| D32 -51 | | | HSS104A | DIODE | MY | |
| D32 -51 | | | 1SS131 | DIODE | MY | |
| D32 -52 | | | HSS104A | DIODE | ETX | |
| D32 -52 | | | 1SS131 | DIODE | ETX | |
| D64 -67 | | | HSS104A | DIODE | | |
| D64 -67 | | | 1SS131 | DIODE | | |
| FL1 | | | FIP10HM6 | FLUORESCENT INDICATOR TUBE | | |
| FL2 ,3 | | | CPF1096 | FLUORESCENT INDICATOR TUBE | | |
| IC1 | | ⁎ | UPD75208CW-A42 | IC(MICROPROCESSOR) | | |
| IC2 | | ⁎ | M50940-187SP | IC(MICROPROCESSOR) | | |
| IC3 | | ⁎ | XR-1091 | IC(GE DISPLAY FILTER) | | |
| IC4 | | | TC4051BP | IC(8CH MPX/ DE-MPX) | | |
| IC5 | | ⁎ | XR-1091 | IC(GE DISPLAY FILTER) | | |
| IC6 ,7 | | | TC74HC77AP | IC(LED DRIVE LATCH) | | |
| IC8 | | ⁎ | TC4028BP | IC(4-10 DECODER) | | |
| IC9 ,10 | | | LB1294 | IC(6CH DARLINGTON DRIVER) | | |
| Q1 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q1 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q2 -4 | | | 2SA733(A)(Q,P) | TRANSISTOR | MY | |
| Q2 -4 | | | 2SA933S(Q,R) | TRANSISTOR | MY | |
| Q3 ,4 | | | 2SA733(A)(Q,P) | TRANSISTOR | ETX | |
| Q3 ,4 | | | 2SA933S(Q,R) | TRANSISTOR | ETX | |
| Q5 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q5 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| A1 | | | W02-0975-05 | ELECTRIC CIRCUIT MODULE | | |
| **CONTROL UNIT (X25-3852-70:J, 2-71:S)** | | | | | | |
| D8 | | | B30-1223-05 | LED(LN21CPH(V)-C) | | |
| D20 -42 | | | B30-0431-05 | LED(LN21CPH) | | |
| J | | | N89-2606-45 | BINDING HEAD TAPTITE SCREW | | |
| S1 -46 | 3I,3J | | S40-1064-05 | PUSH SWITCH | | |
| D1 -7 | | | HSS104A | DIODE | | |
| D1 -7 | | | 1SS131 | DIODE | | |

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|---|---|---|---|---|---|---|
| D9 -19 | | | HSS104A | DIODE | | |
| D9 -19 | | | 1SS131 | DIODE | | |
| D43 -52 | | | HSS104A | DIODE | | |
| D43 -52 | | | 1SS131 | DIODE | | |
| FL1 | 3J | | FIP9BPM7 | FLUORESCENT INDICATOR TUBE(CD) | | |
| Q1 -5 | | | 2SA954(L,K) | TRANSISTOR | | |
| **RECORDING/PLAYBACK UNIT (X28-21xx-xx)** | | | | | | |
| C1 ,2 | | | CC45FSL1H221J | CERAMIC 220PF J | ET | |
| C3 ,4 | | | CE04KW1V100M | ELECTRO 10UF 35WV | | |
| C5 ,6 | | | CC45FSL1H221J | CERAMIC 220PF J | | |
| C7 ,8 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C9 ,10 | | | CK45FB1H152K | CERAMIC 1500PF K | ET | |
| C9 ,10 | | | CK45FB1H561K | CERAMIC 560PF K | XMY | |
| C11 ,12 | | | CF92FV1H123J | MF 0.012UF J | | |
| C13 ,14 | | | CF92FV1H332J | MF 3300PF J | | |
| C15 ,16 | | | CE04KW1V100M | ELECTRO 10UF 35WV | ET | |
| C15 ,16 | | | CF92FV1H683J | MF 0.068UF J | XMY | |
| C17 ,18 | | | CC45FSL1H221J | CERAMIC 220PF J | | |
| C19 -24 | | | CE04KW1V4R7M | ELECTRO 4.7UF 35WV | | |
| C25 ,26 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C27 ,28 | | | CK45FB1H471K | CERAMIC 470PF K | | |
| C29 ,30 | | | CK45FB1H102K | CERAMIC 1000PF K | ET | |
| C31 ,32 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C33 ,34 | | | CF92FV1H753J | MF 0.075UF J | | |
| C35 ,36 | | | CE04KW1HR33M | ELECTRO 0.33UF 50WV | | |
| C37 ,38 | | | CF92FV1H333J | MF 0.033UF J | | |
| C39 ,40 | | | CF92FV1H154J | MF 0.15UF J | | |
| C41 ,42 | | | CF92FV1H123J | MF 0.012UF J | | |
| C43 ,44 | | | CF92FV1H683J | MF 0.068UF J | | |
| C45 ,46 | | | CF92FV1H472J | MF 4700PF J | | |
| C47 ,48 | | | CF92FV1H273J | MF 0.027UF J | | |
| C49 ,50 | | | CF92FV1H182J | MF 1800PF J | | |
| C51 ,52 | | | CF92FV1H103J | MF 0.010UF J | | |
| C53 ,54 | | | CK45FB1H821K | CERAMIC 820PF K | | |
| C55 ,56 | | | CF92FV1H392J | MF 3900PF J | | |
| C57 ,58 | | | CC45FSL1H331J | CERAMIC 330PF J | | |
| C59 -62 | | | CE04KW1H2R2M | ELECTRO 2.2UF 50WV | | |
| C63 -66 | | | CE04KW1C220M | ELECTRO 22UF 16WV | | |
| C67 ,68 | | | CE04KW1V4R7M | ELECTRO 4.7UF 35WV | | |
| C69 ,70 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C71 -74 | | | CK45FB1H391K | CERAMIC 390PF K | XMY | |
| C75 ,76 | | | CF92FV1H153J | MF 0.015UF J | XMY | |
| C77 ,78 | | | CK45FB1H222K | CERAMIC 2200PF K | XMY | |
| C79 ,80 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | XMY | |
| C81 ,82 | | | CE04KW1V4R7M | ELECTRO 4.7UF 35WV | | |
| C83 ,84 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C85 ,86 | | | CF92FV1H104J | MF 0.10UF J | XMY | |
| C87 ,88 | | | CF92FV1H273J | MF 0.027UF J | XMY | |
| C89 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C90 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C91 ,92 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C95 ,96 | | | CK45FB1H561K | CERAMIC 560PF K | | |
| C101,102 | | | CC45FSL1H221J | CERAMIC 220PF J | | |
| C103,104 | | | CK45FB1H561K | CERAMIC 560PF K | | |

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|---|---|---|---|---|---|---|---|---|
| C105,106 | | | CK45FB1H821K | CERAMIC | 820PF | K | | |
| C107-110 | | | CK45FB1H391K | CERAMIC | 390PF | K | | |
| C111,112 | | | CF92FV1H103J | MF | 0.010UF | J | | |
| C113,114 | | | CF92FV1H823J | MF | 0.082UF | J | | |
| C115,116 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C117,118 | | | CK45FB1H102K | CERAMIC | 1000PF | K | | |
| C119,120 | | | CE04KW1V4R7M | ELECTRO | 4.7UF | 35WV | | |
| C121,122 | | | CE04KW1HR22M | ELECTRO | 0.22UF | 50WV | | |
| C123,124 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C125,126 | | | CE04KW1V4R7M | ELECTRO | 4.7UF | 35WV | | |
| C127,128 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C129,130 | | | CE04KW1HR22M | ELECTRO | 0.22UF | 50WV | | |
| C131,132 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C133,134 | | | CE04KW1A101M | ELECTRO | 100UF | 10WV | | |
| C135,136 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C137,138 | | | CE04KW1H2R2M | ELECTRO | 2.2UF | 50WV | | |
| C139,140 | | | CE04KW1V4R7M | ELECTRO | 4.7UF | 35WV | | |
| C141,142 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C143,144 | | | CE04KW1V4R7M | ELECTRO | 4.7UF | 35WV | | |
| C145,146 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C147,148 | | | CE04KW1V4R7M | ELECTRO | 4.7UF | 35WV | | |
| C149,150 | | | CE04KW1A470M | ELECTRO | 47UF | 10WV | | |
| C151,152 | | | CC45FSL1H221J | CERAMIC | 220PF | J | | |
| C153,154 | | | CK45FB1H102K | CERAMIC | 1000PF | K | | |
| C171 | | | CE04KW1A470M | ELECTRO | 47UF | 10WV | | |
| C172,173 | | | CK45FF1H103Z | CERAMIC | 0.010UF | Z | | |
| C174,175 | | | CE04KW1A470M | ELECTRO | 47UF | 10WV | | |
| C178 | | | CE04KW1H220M | ELECTRO | 22UF | 50WV | | |
| C179 | | | CE04KW1H010M | ELECTRO | 1.0UF | 50WV | | |
| C180 | | | CC45FSL1H221J | CERAMIC | 220PF | J | | |
| C181 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C182 | | | CC45FSL1H221J | CERAMIC | 220PF | J | | |
| C183 | | | CK45FB1H102K | CERAMIC | 1000PF | K | | |
| C184 | | | CK45FF1H103Z | CERAMIC | 0.010UF | Z | | |
| C185 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C186 | | | CE04KW1A470M | ELECTRO | 47UF | 10WV | | |
| C187,188 | | | CK45FF1H103Z | CERAMIC | 0.010UF | Z | XMY | |
| C189,190 | | | CF92FV1H104J | MF | 0.10UF | J | | |
| C191 | | | C90-1333-05 | NP-ELEC | 22UF | 10WV | | |
| C192,193 | | | CK45FF1H103Z | CERAMIC | 0.010UF | Z | | |
| C195 | | | CK45FF1H103Z | CERAMIC | 0.010UF | Z | | |
| C196 | | | CE04KW1H220M | ELECTRO | 22UF | 50WV | | |
| C197 | | | CE04KW1C470M | ELECTRO | 47UF | 16WV | | |
| C198 | | | CK45FB1H152K | CERAMIC | 1500PF | K | | |
| C199,200 | | | CK45FF1H103Z | CERAMIC | 0.010UF | Z | | |
| C201 | | | CK45B1H102K | CERAMIC | 1000PF | K | | |
| C211 | | | CE04KW1A101M | ELECTRO | 100UF | 10WV | | |
| C212 | | | CE04KW1C470M | ELECTRO | 47UF | 16WV | | |
| C213 | | | CE04KW1C101M | ELECTRO | 100UF | 16WV | | |
| C214 | | | CE04KW1H010M | ELECTRO | 1.0UF | 50WV | | |
| C215 | | | CE04KW1C220M | ELECTRO | 22UF | 16WV | | |
| C216 | | | CE04KW1C101M | ELECTRO | 100UF | 16WV | | |
| C217 | | | CE04KW1V100M | ELECTRO | 10UF | 35WV | | |
| C218 | | | CE04KW1H2R2M | ELECTRO | 2.2UF | 50WV | | |
| C219,220 | | | CF92FV1H392J | MF | 3900PF | J | | |

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|---|---|---|---|---|---|---|
| C221 | | | CF92FV1H123J | MF 0.012UF J | | |
| C222 | | | CE04KW1V100M | ELECTRO 10UF 35WV | | |
| C223 | | | CQ93HP2A103J | MYLAR 0.010UF J | | |
| C224 | | | CF92FV1H471J | MF 470PF J | | |
| C225 | | | CE04KW1C470M | ELECTRO 47UF 16WV | | |
| C226 | | | CE04KW1A101M | ELECTRO 100UF 10WV | | |
| C227 | | | CC45FSL1H221J | CERAMIC 220PF J | | |
| C228 | | | CE04KW1V100M | ELECTRO 10UF 35WV | | |
| C229 | | | CE04KW1C101M | ELECTRO 100UF 16WV | | |
| C230 | | | CF92FV1H332J | MF 3300PF J | | |
| C231 | | | CF92FV1H104J | MF 0.10UF J | | |
| C232 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C233 | | | CC45FSL1H221J | CERAMIC 220PF J | | |
| C234 | | | CE04KW1V100M | ELECTRO 10UF 35WV | | |
| C235 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C236-238 | | | CE04KW1V100M | ELECTRO 10UF 35WV | | |
| C239 | | | CE04KW1V4R7M | ELECTRO 4.7UF 35WV | | |
| C240 | | | CE04KW1A101M | ELECTRO 100UF 10WV | | |
| C241 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| C242 | | | C91-0769-05 | CERAMIC 0.01UF M | | |
| C243 | | | CE04KW1V4R7M | ELECTRO 4.7UF 35WV | | |
| C244 | | | CE04KW1C331M | ELECTRO 330UF 16WV | | |
| CN7 | | * | E10-0810-05 | FLAT CABLE CONNECTOR | | |
| E1 ,2 | 2N | | E13-0255-05 | PHONO JACK (2P)(AUX/PHONO) | | |
| E3 | 2M | | E11-0197-05 | PHONE JACK (MIC) | | |
| 590 | 2M | * | J21-5544-04 | MOUNTING HARDWARE | | |
| E7 -9 | | | J11-0098-05 | WIRE CLAMPER | | |
| L1 ,2 | | | L79-0720-05 | LC FILTER | | |
| L3 ,4 | | | L39-0145-05 | LW OSCILLATING COIL | | |
| L5 | | * | L32-0390-05 | BIAS OSCILATING COIL | | |
| X1 | | | L78-0209-05 | RESONATOR (4.194MHZ) | | |
| C | | | N89-3008-46 | BINDING HEAD TAPTITE SCREW | | |
| CP1 | | * | R90-0856-05 | COMPOSITE ELEMENTS | | |
| CP3 | | | R90-0818-05 | MULTIPLE RESISTOR | | |
| CP5 | | | R90-0805-05 | MULTI-COMP 10KX8 J 1/4W | | |
| CP6 | | | R90-0819-05 | MULTIPLE RESISTOR | | |
| CP7 | | | R90-0487-05 | MULTI-COMP 47KX4 J 1/6W | | |
| CP8 | | | R90-0804-05 | MULTI-COMP 47KX8 J 1/4W | | |
| CP9 | | * | R90-0857-05 | COMPOSITE ELEMENTS | | |
| CP10 | | * | R90-0858-05 | COMPOSITE ELEMENTS | | |
| R261 | | | RD14GB2E221J | FL-PROOF RD 220 J 1/4W | | |
| R311 | | | RD14GB2E100J | FL-PROOF RD 10 J 1/4W | | |
| R312,313 | | | RD14GB2E3R3J | FL-PROOF RD 3.3 J 1/4W | | |
| R316 | | | RD14GB2E471J | FL-PROOF RD 470 J 1/4W | | |
| R322 | | | RD14GB2E471J | FL-PROOF RD 470 J 1/4W | | |
| R408 | | | RD14GB2E101J | FL-PROOF RD 100 J 1/4W | | |
| VR1 -6 | | | R12-3128-05 | TRIM POT. 22K | | |
| VR7 ,8 | | | R12-5071-05 | TRIMMING POT.(220K)BIAS | | |
| VR9 -12 | | | R12-1085-05 | TRIM POT. 2.2K | | |
| VR13 | 2M | * | R29-5036-15 | POTENTIOMETER(100K X2)VOL | | |
| VR14 | 2M | * | R05-5032-05 | POTENTIOMETER(200K)CLICK BAL | | |
| VR15 | 2M | * | R06-5177-05 | POTENTIOMETER(200K X2)MIC MIX | | |

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# RXD-24/24M

## PARTS LIST

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|---|---|---|---|---|---|---|
| S1 | 2N | | S31-2094-05 | SLIDE SWITCH (BEAT CANCEL) | | |
| D1 -4 | | | HSS104 | DIODE | | |
| D1 -4 | | | 1SS133 | DIODE | | |
| D5 ,6 | | | HZS6.8N(B2) | ZENER DIODE | | |
| D5 ,6 | | | RD6.8ES(B2) | ZENER DIODE | | |
| D9 | | | HZS5.1S(B2) | ZENER DIODE | | |
| D9 | | | RD5.1JS(B2) | ZENER DIODE | | |
| D10 | | | HZS6.8N(B2) | ZENER DIODE | | |
| D10 | | | RD6.8ES(B2) | ZENER DIODE | | |
| D11 ,12 | | | HSS104 | DIODE | | |
| D11 ,12 | | | 1SS133 | DIODE | | |
| D14 | | | HZS5.1S(B2) | ZENER DIODE | | |
| D14 | | | RD5.1JS(B2) | ZENER DIODE | | |
| D21 | | | HSS104 | DIODE | | |
| D21 | | | 1SS133 | DIODE | | |
| D22 | | | HZS8.2S(B2) | ZENER DIODE | | |
| D22 | | | RD8.2JS(B2) | ZENER DIODE | | |
| D23 -25 | | | HSS104 | DIODE | | |
| D23 -25 | | | 1SS133 | DIODE | | |
| D26 | | | HZS5.1S(B2) | ZENER DIODE | | |
| D26 | | | RD5.1JS(B2) | ZENER DIODE | | |
| D27 -36 | | | HSS104 | DIODE | | |
| D27 -36 | | | 1SS133 | DIODE | | |
| D39 | | | HSS104 | DIODE | | |
| D39 | | | 1SS133 | DIODE | | |
| D41 | | | HSS104 | DIODE | | |
| D41 | | | 1SS133 | DIODE | | |
| D42 -44 | | | S5566B | DIODE | | |
| D45 -47 | | | HSS104 | DIODE | | |
| D45 -47 | | | 1SS133 | DIODE | | |
| D48 -50 | | | S5566B | DIODE | | |
| D51 -55 | | | HSS104 | DIODE | | |
| D51 -55 | | | 1SS133 | DIODE | | |
| D56 | | | HZS6.8N(B2) | ZENER DIODE | | |
| D56 | | | RD6.8ES(B2) | ZENER DIODE | | |
| D57 -59 | | | HSS104 | DIODE | | |
| D57 -59 | | | 1SS133 | DIODE | | |
| D61 | | | HSS104 | DIODE | | |
| D61 | | | 1SS133 | DIODE | | |
| IC1 ,2 | | | LA3607 | IC(7BAND GRAPHIC EQUALIZER) | | |
| IC3 | | | NJU7305L | IC(DUAL 4-CHANNEL MULTIPLEXER) | | |
| IC4 | | | M5218P | IC(OP AMP X2) | | |
| IC4 | | | NJM4565D | IC(OP AMP X2) | | |
| IC5 | | | TC4052BP | IC(4CH MPX/DE-MPX) | | |
| IC6 | | | TC4066BP | IC(ANALOG/ DIGITAL SW) | | |
| IC7 | | | M5218P | IC(OP AMP X2) | | |
| IC7 | | | NJM4565D | IC(OP AMP X2) | | |
| IC8 | | | TC4066BP | IC(ANALOG/ DIGITAL SW) | XMY | |
| IC9 | | | UPC4574C | IC(OP AMP X4) | XMY | |
| IC10 | | | M5218P | IC(OP AMP X2) | | |
| IC10 | | | NJM4565D | IC(OP AMP X2) | | |
| IC11 | | | LB1641 | IC(MOTOR DRIVER) | | |
| IC12 | | | CXA1115BP | IC(PLAY/BACK AMP) | | |
| IC13 | | | UPC1330HA | IC(2CH HEAD SWITCHING) | | |

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|---|---|---|---|---|---|---|
| IC14 | | | TC9213P | IC(2CH ELECTRONIC VOLUME) | | |
| IC15 | | | HA12136A | IC | | |
| IC16 | | | CXA1198AP | IC(CASSETTE DECK REC EQUALIZER | | |
| IC17 | | | M5218P | IC(OP AMP X2) | | |
| IC17 | | | NJM4565D | IC(OP AMP X2) | | |
| IC18 | | | UPD75112CW-044 | IC(MICROPROCESSOR) | | |
| Q1 -4 | | | 2SD1302(S,T) | TRANSISTOR | XMY | |
| Q1 ,2 | | | 2SD1302(S,T) | TRANSISTOR | ET | |
| Q5 ,6 | | | 2SC1845(F,E) | TRANSISTOR | | |
| Q7 ,8 | | | 2SD1302(S,T) | TRANSISTOR | | |
| Q9 ,10 | | | 2SC1845(F,E) | TRANSISTOR | | |
| Q11 -16 | | | DTC124EN | DIGITAL TRANSISTOR | | |
| Q17 -22 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q17 -22 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q23 ,24 | | | 2SD1302(S,T) | TRANSISTOR | | |
| Q25 ,26 | | | 2SC1845(F,E) | TRANSISTOR | | |
| Q27 ,28 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q27 ,28 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q51 ,52 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q51 ,52 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q53 | | | 2SA733(A)(Q,P) | TRANSISTOR | | |
| Q53 | | | 2SA933S(Q,R) | TRANSISTOR | | |
| Q54 ,55 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q54 ,55 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q56 | | | DTA124EN | DIGITAL TRANSISTOR | | |
| Q57 | | | 2SC1740S(Q,R) | TRANSISTOR | XMY | |
| Q57 | | | 2SC945(A)(Q,P) | TRANSISTOR | XMY | |
| Q58 | | | 2SA733(A)(Q,P) | TRANSISTOR | XMY | |
| Q58 | | | 2SA933S(Q,R) | TRANSISTOR | XMY | |
| Q59 -61 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q59 -61 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q62 ,63 | | | 2SA733(A)(Q,P) | TRANSISTOR | | |
| Q62 ,63 | | | 2SA933S(Q,R) | TRANSISTOR | | |
| Q71 -73 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q71 -73 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q74 | | | DTA124EN | DIGITAL TRANSISTOR | | |
| Q75 -84 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q75 -84 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q85 -87 | | | DTC124EN | DIGITAL TRANSISTOR | | |
| Q88 | | | 2SA733(A)(Q,P) | TRANSISTOR | | |
| Q88 | | | 2SA933S(Q,R) | TRANSISTOR | | |
| Q89 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q89 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q90 | | | 2SD863(E,F) | TRANSISTOR | | |
| Q91 ,92 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q93 ,94 | | | 2SC1845(F,E) | TRANSISTOR | | |
| Q95 | | | 2SA992(F,E) | TRANSISTOR | | |
| Q101,102 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q101,102 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q103 | | | 2SA733(A)(Q,P) | TRANSISTOR | | |
| Q103 | | | 2SA933S(Q,R) | TRANSISTOR | | |
| Q105 | | | 2SA733(A)(Q,P) | TRANSISTOR | | |
| Q105 | | | 2SA933S(Q,R) | TRANSISTOR | | |
| Q106 | | | DTC124EN | DIGITAL TRANSISTOR | | |
| Q107-109 | | | 2SC3246 | TRANSISTOR | | |

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# RXD-24/24M

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|---|---|---|---|---|---|---|
| Q110 | | | 2SA733(A)(Q,P) | TRANSISTOR | | |
| Q110 | | | 2SA933S(Q,R) | TRANSISTOR | | |
| Q111 | | | DTC124EN | DIGITAL TRANSISTOR | | |
| Q112-114 | | | 2SC3246 | TRANSISTOR | | |
| Q115 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q115 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q116 | | | DTA124EN | DIGITAL TRANSISTOR | | |
| **CD PLAYER UNIT (X32-1542-71:J, 52-71:S)** | | | | | | |
| C1 | | | CE04KW1A101M | ELECTRO 100UF 10WV | | |
| C2 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C4 | | | CC45FSL1H270J | CERAMIC 27PF J | | |
| C5 | | | CF92FV1H103J | MF 0.010UF J | | |
| C6 | | | C90-1349-05 | NP-ELEC 1UF 50WV | | |
| C7 | | | CF92FV1H103J | MF 0.010UF J | | |
| C8 | | | CF92FV1H222J | MF 2200PF J | | |
| C9 ,10 | | | CE04KW0J331M | ELECTRO 330UF 6.3WV | | |
| C11 | | | CK45FB1H102K | CERAMIC 1000PF K | | |
| C12 | | | CF92FV1H123J | MF 0.012UF J | | |
| C13 | | | CE04KW1V100M | ELECTRO 10UF 35WV | | |
| C14 | | | CF92FV1H223J | MF 0.022UF J | | |
| C15 | | | CE04KW1V100M | ELECTRO 10UF 35WV | | |
| C16 | | | C90-1333-05 | NP-ELEC 22UF 10WV | | |
| C17 | | | CF92FV1H104J | MF 0.10UF J | | |
| C18 | | | CC45FSL1H181J | CERAMIC 180PF J | | |
| C19 | | | CF92FV1H563J | MF 0.056UF J | | |
| C20 | | | CF92FV1H183J | MF 0.018UF J | | |
| C21 | | | CF92FV1H334J | MF 0.33UF J | | |
| C22 | | | CF92FV1H223J | MF 0.022UF J | | |
| C23 | | | CF92FV1H473J | MF 0.047UF J | | |
| C24 | | | CC45FSL1H221J | CERAMIC 220PF J | | |
| C25 | | | CF92FV1H273J | MF 0.027UF J | | |
| C26 | | | CF92FV1H124J | MF 0.12UF J | | |
| C27 | | | CC45FSL1H181J | CERAMIC 180PF J | | |
| C28 | | | C90-1332-05 | NP-ELEC 10UF 25WV | | |
| C29 | | | CF92FV1H103J | MF 0.010UF J | | |
| C30 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C31 | | | CK45FB1H332K | CERAMIC 3300PF K | | |
| C32 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C33 ,34 | | | CE04KW1V100M | ELECTRO 10UF 35WV | | |
| C35 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C39 | | | CC45FUJ1H221J | CERAMIC 220PF J | | |
| C40 | | | CC45FUJ1H330J | CERAMIC 33PF J | | |
| C41 | | | CC45FUJ1H050C | CERAMIC 5.0PF C | | |
| C42 ,43 | | | CK45FB1H222K | CERAMIC 2200PF K | | |
| C44 | | | CF92FV1H104J | MF 0.10UF J | | |
| C45 | | | CC45FSL1H101J | CERAMIC 100PF J | | |
| C46 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C47 ,48 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C49 | | | CE04KW1HR47M | ELECTRO 0.47UF 50WV | | |
| C50 | | | CK45FB1H222K | CERAMIC 2200PF K | | |
| C51 | | | CE04KW1HR47M | ELECTRO 0.47UF 50WV | | |
| C52 | | | CF92FV1H333J | MF 0.033UF J | | |
| C53 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C54 | | | CF92FV1H473J | MF 0.047UF J | | |

| | | | |
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|---|---|---|---|---|---|---|
| C55 | | | CE04KW0J331M | ELECTRO 330UF 6.3WV | | |
| C56 ,57 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C60 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C61 ,62 | | | CF92FV1H122J | MF 1200PF J | | |
| C65 ,66 | | | CF92FV1H223J | MF 0.022UF J | | |
| C67 ,68 | | | CE04KW1V100M | ELECTRO 10UF 35WV | | |
| C69 | | | C90-1350-05 | NP-ELEC 2.2UF 50WV | | |
| C70 ,71 | | | CE04KW1A470M | ELECTRO 47UF 10WV | | |
| C72 ,73 | | | CE04KW1A101M | ELECTRO 100UF 10WV | | |
| C74 ,75 | | | CK45FF1H103Z | CERAMIC 0.010UF Z | | |
| C76 | | | CK45FB1H102K | CERAMIC 1000PF K | | |
| C77 ,78 | | | CC45FSL1H470J | CERAMIC 47PF J | | |
| C79 | | | C90-1350-05 | NP-ELEC 2.2UF 50WV | | |
| L1 | | | L40-1001-17 | SMALL FIXED INDUCTOR(10UH,K) | | |
| L2 | | | L32-0355-05 | OSCILATING COIL | | |
| L3 ,4 | | | L40-2291-17 | SMALL FIXED INDUCTOR | | |
| X2 | | | L78-0218-05 | RESONATOR(4.19MHZ) | | |
| X3 | | | L77-1164-05 | CRYSTAL RESONATOR (16.9344MHZ) | | |
| K | | | N30-3006-46 | PAN HEAD MACHINE SCREW | | |
| L | | * | N88-3006-45 | FLAT HEAD TAPTITE SCREW | | |
| CP1 | | | R90-0487-05 | MULTI-COMP 47KX4 J 1/6W | | |
| R47 | | | RD14GB2E4R7J | FL-PROOF RD 4.7 J 1/4W | | |
| VR1 ,2 | | | R12-3128-05 | TRIM POT. 22K | | |
| VR3 ,4 | | | R12-3126-05 | TRIM POT. 10K | | |
| D1 ,2 | | | HSS104A | DIODE | | |
| D1 ,2 | | | 1SS131 | DIODE | | |
| D3 | | | 1SV147 | VARISTOR | | |
| D4 | | | HSS104A | DIODE | | |
| D4 | | | 1SS131 | DIODE | | |
| D6 | | | HZS6.8N(B) | ZENER DIODE | | |
| D6 | | | RD6.8ES(B) | ZENER DIODE | | |
| D7 -9 | | | HZS4.7N(B) | ZENER DIODE | | |
| D7 -9 | | | RD4.7ES(B) | ZENER DIODE | | |
| D11 ,12 | | | HSS104A | DIODE | | |
| D11 ,12 | | | 1SS131 | DIODE | | |
| D13 ,14 | | | HZS2.7N(B2) | ZENER DIODE | | |
| D13 ,14 | | | RD2.7ES(B2) | ZENER DIODE | | |
| D15 | | | HZS4.7N(B) | ZENER DIODE | | |
| D15 | | | RD4.7ES(B) | ZENER DIODE | | |
| IC1 | | | CXA1081S | IC(RF AMP) | | |
| IC2 | | | CXA1244S | IC(SERVO SIGNAL PROCESSOR) | | |
| IC3 | | | CXD1135QZ | IC(DIGITAL SIGNAL PROCESSOR) | | |
| IC4 | | | CXK5816SP-10L | IC(2KX8 RAM) | | |
| IC5 | | | TC4066BP | IC(ANALOG/ DIGITAL SW) | | |
| IC8 | | | NJM4565D | IC(OP AMP X2) | | |
| IC11 | | | TDA1543A | IC(16-BIT DAC) | | |
| IC12-14 | | | NJM4565D | IC(OP AMP X2) | | |
| IC15 | | * | UPD75212ACW-157 | IC(MICROPROCESSOR) | | |
| Q1 | | | 2SA1534A | TRANSISTOR | | |
| Q2 | | | 2SA733(A)(Q,P) | TRANSISTOR | | |
| Q2 | | | 2SA933S(Q,R) | TRANSISTOR | | |
| Q4 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q4 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q5 | | | 2SD1266 | TRANSISTOR | | |

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|---|---|---|---|---|---|---|
| Q6 ,7 | | | 2SA1534A | TRANSISTOR | | |
| Q8 | | | 2SC3940A | TRANSISTOR | | |
| Q9 | | | STA341M | TRANSISTOR | | |
| Q14 ,15 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q14 ,15 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q16 | | | DTA124ES | DIGITAL TRANSISTOR | | |
| Q18 ,19 | | | 2SD1302(S,T) | TRANSISTOR | | |
| Q20 | | | 2SC1740S(Q,R) | TRANSISTOR | | |
| Q20 | | | 2SC945(A)(Q,P) | TRANSISTOR | | |
| Q21 | | | 2SD1266 | TRANSISTOR | | |
| Q22 | | | 2SC3940A | TRANSISTOR | | |
| Q23 | | | DTC124ES | DIGITAL TRANSISTOR | | |
| **CD MECHANISM ASS'Y (X92-1370-03) JAPAN MADE** | | | | | | |
| | | | A11-0622-08 | SUB CHASSIS | | |
| 1 | 1A | * | A10-2563-01 | CHASSIS | | |
| 2 | 2A | * | A11-0647-05 | SUB CHASSIS ASSY | | |
| 3 | 3B | | A11-0621-08 | SUB CHASSIS INJECTION MOLD | | |
| 4 | 2B | | A11-0623-08 | SUB CHASSIS | | |
| 5 | 3B | | A11-0675-08 | SUB CHASSIS ASSY(SPINDLE) | | |
| 8 | 2B | | B09-0098-08 | CAP | | |
| 13 | 3B | | D02-0091-08 | TURNTABLE PLATTER | | |
| 14 | 1B | | D10-2324-03 | SLIDER | | |
| 15 | 3B | | D10-2325-04 | ROD | | |
| 16 | 1B | | D13-0807-04 | GEAR | | |
| 17 | 1B | | D13-0808-02 | GEAR | | |
| 18 | 3B | * | D13-0809-04 | GEAR | | |
| 19 | 3B | | D13-0810-04 | GEAR | | |
| 20 | 3B | | D13-0811-04 | GEAR | | |
| 21 | 1B | | D13-0813-04 | GEAR | | |
| 22 | 2B | | D15-0296-04 | MOTOR PULLEY | | |
| 23 | 1B | | D16-0282-04 | BELT | | |
| 27 | 1B | | E23-0343-04 | TERMINAL | | |
| 28 | 2B | * | E31-7447-05 | WIRING HARNESS (WHITE/BLUE) | | |
| 29 | 2B | * | E31-7448-05 | WIRING HARNESS (WHITE/RED) | | |
| 30 | 2B | * | E31-7449-05 | WIRING HARNESS | | |
| 35 | 1B | | F19-1005-04 | BLIND PLATE | | |
| | | * | G02-0965-04 | FLAT SPRING | | |
| 38 | 2B | | G01-2385-08 | COMPRESSION SPRING | | |
| 39 | 2B | | G01-2390-08 | COMPRESSION SPRING | | |
| 41 | 1B | | G02-0927-04 | FLAT SPRING | | |
| 42 | 2A | | G16-0739-04 | SHEET | | |
| 43 | 2A | | G16-0744-04 | SHEET | | |
| 44 | 1B | * | G02-0945-14 | FLAT SPRING ASSY | | |
| 47 | 2B | | J02-1033-05 | INSULATOR | | |
| 48 | 2B | | J11-0151-03 | CLAMPER | | |
| 49 | 3B | | J91-0385-08 | PICKUP | | |
| 51 | 2A | * | J99-0065-11 | TRAY | | |
| 52 | 2A | * | J99-0067-13 | TRAY ASSY | | |
| A | | | N35-2605-46 | BINDING HEAD MACHINE SCREW | | |
| B | | | N09-1522-05 | SET SCREW (3X8) | | |
| C | | | N39-2025-46 | PAN HEAD MACHINE SCREW | | |

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|---|---|---|---|---|---|---|
| D | | * | N09-2705-05 | MACHINE SCREW | | |
| E | | | N89-2610-46 | BINDING HEAD TAPTITE SCREW | | |
| F | | | N19-1179-05 | FLAT WASHER | | |
| G | | | N89-2608-46 | BINDING HEAD TAPTITE SCREW | | |
| H | | | N88-3008-45 | FLAT HEAD TAPTITE SCREW | | |
| 55 | 3B | | S33-1022-05 | LEVER SWITCH | | |
| 56 | 2B | | S33-2061-05 | LEVER SWITCH | | |
| 60 | 2B | | T42-0530-05 | DC MOTOR | | |
| 61 | 3B | | T42-0531-05 | DC MOTOR | | |
| 62 | 3B | | T42-0532-05 | DC MOTOR | | |
| 63 | 2B | | T50-1044-04 | YOKE | | |
| 64 | 2B | | T99-0233-05 | MAGNET | | |
| **CD MECHANISM ASS'Y (X92-1400-03) SINGAPORE MADE** | | | | | | |
| 101 | 1C | * | A10-2564-01 | CHASSIS | | S |
| 104 | 3D | | A11-0625-02 | SUB CHASSIS | | S |
| 114 | 1D | | D10-2324-03 | SLIDER | | |
| 115 | 2D | | D10-2315-04 | ROD | | S |
| 116 | 1D | | D13-0807-04 | GEAR(INTERMEDIATE) | | |
| 117 | 1D | | D13-0808-02 | GEAR(MAIN) | | |
| 119 | 2D | | D13-0802-08 | GEAR(A) | | S |
| 120 | 2D | | D13-0803-08 | GEAR(B) | | S |
| 121 | 1D | | D13-0813-04 | GEAR(PULLEY) | | |
| 122 | 2D | | D15-0296-04 | MOTOR PULLEY | | |
| 123 | 1D | | D16-0284-03 | BELT | | S |
| 124 | 2D | | D40-0876-05 | MECHANISH ASSY | | S |
| 126 | 1D | | G02-0926-04 | FLAT SPRING ASSY | | |
| 127 | 1D | | E23-0343-04 | TERMINAL(SHORT) | | |
| 128 | 2D | * | E31-7452-05 | WIRING HARNESS(WHITE/BLUE) | | S |
| 129 | 2D | * | E31-7237-05 | WIRING HARNESS(WHITE/RED) | | S |
| 130 | 2D | * | E31-7453-05 | WIRING HARNESS(5P) | | S |
| 131 | 3D | * | E40-0188-08 | CONNECTOR PIN(4P) | | S |
| 134 | 2D | | F07-0554-08 | GEAR COVER | | |
| 135 | 1D | | F19-1015-14 | BLIND PLATE | | S |
| 138 | 3D | | G01-2394-04 | COMPRESSION SPRING(FRONT) | | S |
| 139 | 3D | | G01-2395-04 | COMPRESSION SPRING(REAR) | | S |
| 140 | 1D | | G02-0926-04 | FLAT SPRING(L) | | |
| 141 | 1D | | G02-0927-04 | FLAT SPRING(R) | | |
| 142 | 2C | | G16-0743-04 | SHEET | | S |
| 143 | 2C | | G16-0745-04 | SHEET | | S |
| 144 | 2D | | J19-3148-08 | SHAFT CLAMP | | S |
| 145 | 3D | | J25-6135-08 | MOTOR PCB | | |
| 146 | 2D | | J90-0640-08 | SLIDER HOLDER(J) | | S |
| 147 | 3D | * | J02-1027-15 | INSULATOR | | S |
| 148 | 2D | | J11-0130-03 | CLAMPER | | S |
| 149 | 2D | | J91-0385-08 | PICKUP(KSS-150A(H)) | | |
| 150 | 3D | | J42-0175-04 | BUSHIHG | | S |
| 151 | 1C | | J99-0069-11 | TRAY | | S |
| 152 | 2C | * | J99-0070-13 | TRAY ASSY | | S |
| A | | | N35-2605-46 | BINDING HEAD MACHINE SCREW | | |
| B | | | N09-1522-05 | SET SCREW (3X8) | | |
| C | | | N39-2005-46 | PAN HEAD MACHINE SCREW | | |
| D | | | N89-2608-46 | BINDING HEAD TAPTITE SCREW | | S |

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# RXD-24/24M

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|---|---|---|---|---|---|---|
| E | | | N09-2670-08 | SCREW | | |
| F | | | N09-2671-08 | SCREW | | S |
| G | | | N89-2606-46 | BIND HEAD TAPTITE SCREW | | |
| H | | | N19-1217-04 | FLAT WASHER | | S |
| 155 | 3D | | S46-1128-08 | LEAF SWITCH(S1/LIMIT) | | S |
| 156 | 2D | | S33-2061-05 | LEVER SWITCH(S2/OPEN,CLOSE) | | |
| 160 | 2D | | T42-0530-05 | DC MOTOR(M3/TRAY) | | |
| 161 | 2D | | T42-0528-08 | DC MOTOR(M2/SPINDLE) | | S |
| 162 | 3D | | T42-0527-08 | DC MOTOR(M1/FEE) | | |
| 163 | 2D | | T50-1046-04 | YOKE | | S |
| 164 | 2D | | T99-0233-05 | MAGNET | | |
| C1 | | | CE04KW1H010M | ELECTRO 1.0UF 50WV | | |
| **DECK MECHANISM ASS'Y (D40-0896-05:A (J), 7-05:B (J), 8-05:A (S), 9-05:B (S))** | | | | | | |
| 301 | 1E | | A11-0610-08 | SUB CHASSIS ASSY | | |
| 302 | 1F | | D01-0108-08 | FLYWHEEL ASSY (RE) | | |
| 303 | 1F | * | D01-0209-08 | FLYWHEEL ASSY (LF) | | |
| 305 | 2F | | D10-2294-08 | LEVER (RV) | | |
| 306 | 2F | | D10-2300-08 | ARM ASSY (TR) | | |
| 309 | 1F | | D10-2290-08 | LEVER (FR) | | |
| 310 | 2E | | D10-2295-08 | ARM (EJECT LOCK) | | B |
| 311 | 2F | | D10-2296-08 | ARM (SELECT) | | |
| 312 | 2E | | D10-2297-08 | ARM (PLAY) | | |
| 313 | 2E | | D10-2298-08 | ARM (RV) | | |
| 314 | 2E | | D10-2291-08 | LEVER (RV) | | |
| 315 | 1E | | D10-2301-08 | ARM ASSY | | |
| 316 | 2F | | D10-2302-08 | ARM ASSY (FR) | | |
| 317 | 3F | | D10-2303-08 | ARM ASSY | | |
| 318 | 2E | | D10-2304-08 | ARM (EJECT LOCK) | | A |
| 319 | 3F | | D13-0789-08 | GEAR (FR) | | |
| 320 | 2F | | D13-0790-08 | GEAR (REW) | | |
| 321 | 2F | | D13-0791-08 | GEAR (FR) | | |
| 322 | 2F | | D13-0792-08 | GEAR (PL CAM) | | |
| 323 | 2E | | D13-0793-08 | GEAR (PLAY) | | |
| 324 | 1F | | D13-0794-08 | GEAR (FW) | | |
| 325 | 2E | | D14-0297-08 | PINCH ROLLER ASSY(R) | | |
| 326 | 1E | | D14-0298-08 | PINCH ROLLER ASSY(L) | | |
| 327 | 1F | | D16-0200-08 | BELT (DRIVE) | | |
| 328 | 1F | | D16-0271-08 | BELT (CLUTCH) | | |
| 329 | 1F | | D19-0255-08 | CLUTCH ASSY | | |
| 330 | 1E | | D19-0256-08 | SHAFT (HUB) | | |
| 331 | 2E | | D23-0244-08 | RETAINER (R) | | |
| 332 | 2E | | D23-0245-08 | RETAINER (L) | | |
| 333 | 2F | | D30-0023-08 | BRAKE | | |
| 334 | 1E | | D40-0849-08 | MACHANISM ASSY (HEAD ASSY) | | B |
| 334 | 1E | | D40-0850-08 | MACHANISM ASSY (HEAD ASSY) | | A |
| 335 | 1F | * | E31-7625-08 | LEAD WIRE 14P(H) | | A |
| 335 | 1F | * | E31-7626-08 | LEAD WIRE 14P(G) | | B |
| 337 | 1E | * | E31-7627-08 | WIRING HARNESS (P/RHEAD) | | B |
| 339 | 1E | * | E31-7639-08 | WIRING HARNESS (PB HEAD) | | |
| 341 | 1E | | G01-2348-08 | COMPRESSION SPRING (REEL) | | |
| 342 | 1E | | G01-2349-08 | COMPRESSION SPRING | | |

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|---|---|---|---|---|---|---|
| 343 | 2F | | G01-2350-08 | EXTENSION SPRING | | |
| 344 | 1F | | G01-2351-08 | EXTENSION SPRING | | |
| 345 | 2F | | G01-2352-08 | EXTENSION SPRING | | |
| 346 | 2E | | G01-2353-08 | EXTENSION SPRING | | |
| 347 | 1E | | G01-2354-08 | EXTENSION SPRING | | |
| 348 | 2F | | G01-2355-08 | TORSION COIL SPRING | | |
| 349 | 1F | | G01-2356-08 | TORSION COIL SPRING (BRAKE) | | |
| 350 | 3F | | G01-2357-08 | TORSION COIL SPRING | | |
| 351 | 2E | | G01-2358-08 | TORSION COIL SPRING | | |
| 352 | 2E | | G01-2359-08 | TORSION COIL SPRING | | |
| 353 | 2E | | G01-2360-08 | TORSION COIL SPRING | | |
| 354 | 2E | | G01-2361-08 | TORSION COIL SPRING | | |
| 355 | 2E | | G01-2362-08 | TORSION COIL SPRING | | |
| 356 | 2E | | G01-2363-08 | TORSION COIL SPRING | | |
| 357 | 2E | | G01-2364-08 | TORSION COIL SPRING | | B |
| 359 | 2E | | G01-2366-08 | TORSION COIL SPRING | | A |
| 360 | 1E | | G02-0913-08 | FLAT SPRING | | |
| 361 | 2E | | G16-0727-08 | SHEET | | |
| 363 | 1F | | J19-3130-08 | HOLDER (MOTOR) | | |
| 364 | 1E | | J19-3131-08 | HOLDER | | |
| 365 | 1F | | J19-3132-08 | LEAD HOLDER | | |
| 366 | 2F | | J19-3133-08 | HOLDER ASSY | | |
| 367 | 2E | | J21-5310-08 | MOUNTING HARDWARE | | |
| 368 | 1F | | J25-6085-08 | PRINTED WIRING BOARD (SW) | | |
| 370 | 2E | | J31-0824-08 | COLLAR | | B |
| 371 | 2E | | J31-0825-08 | COLLAR | | A |
| 372 | 1E | | J90-0631-08 | GUIDE (R) | | |
| 373 | 1E | | J90-0632-08 | GUIDE (L) | | |
| 374 | 2E | | J90-0633-08 | GUIDE (CASSETTE) | | |
| 375 | 1E | | T39-0008-08 | REC/PB/HEAD | | B |
| 376 | 1E | | T31-0054-08 | PLAYBACK HEAD | | A |
| 377 | 1F | * | T42-0564-08 | DC MOTOR ASSY | | |
| 378 | 3F | | T94-0215-08 | SOLENOIDE COIL | | |
| 379 | 1E | | D03-0276-08 | REEL DISK ASSY | | |
| 380 | 2F | | D10-2299-08 | ARM (FR) | | |
| 381 | 1F | | S46-1125-08 | LEAF SWITCH (REC) | | |
| 383 | 1F | | S46-1127-08 | LEAF SWITCH | | |
| 386 | 1E | | N19-1031-08 | FLAT WASHER | | |
| 387 | 2E | | N19-1198-08 | FLAT WASHER | | |
| 389 | 2E, 1F | * | N19-1244-08 | FLAT WASHER | | |
| 390 | 2E, 1F | * | N19-1243-08 | FLAT WASHER | | |
| 391 | 2F | | N19-1202-08 | FLAT WASHER | | |
| 392 | 2E | * | N19-1242-08 | FLAT WASHER | | |
| 393 | 2E | * | N19-1245-08 | FLAT WASHER | | |
| 396 | 1E | | N29-0207-04 | E RING | | |
| 399 | 1F | | NJL5765K(A,B) | OPTO ISOLATOR | | |
| A | | | N09-1496-08 | MACHINE SCREW | | |
| B | | | N09-1497-08 | MACHINE SCREW | | |
| C | | | N09-2661-08 | MACHINE SCREW | | |
| D | | | N09-2653-08 | MACHINE SCREW | | |
| E | | | N09-2654-08 | MACHINE SCREW | | |
| F | | | N09-2655-08 | MACHINE SCREW | | |
| G | | | N09-2656-08 | MACHINE SCREW | | |
| H | | | N09-2657-08 | MACHINE SCREW | | |

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# RXD-24/24M

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|---|---|---|---|---|---|---|
| J | | | N09-2658-08 | MACHINE SCREW | | |
| K | | | N09-2659-08 | MACHINE SCREW | | |
| L | | | N09-2660-08 | MACHINE SCREW | | |
| M | | | N09-2662-08 | MACHINE SCREW (HEAD) | | |

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# RXD-24/24M

# SPECIFICATIONS

## Amplifier Section

**(RXD-24)**

| | |
|---|---|
| **Continuous power output** | |
| **DIN at 1 kHz 8 Ω** | 35W + 35W |
| **IEC/NF at 8 Ω** | 35W + 35W |
| **Total harmonic distortion at 1/2 rated power** | 0.09% |

**(RXD-24M)**

| | |
|---|---|
| **Continuous power output** | |
| **IHF '66 from 40 Hz to 20 kHz, 0.09% T.H.D. at 6 Ω** | 33 W + 33 W |
| **EIAJ maximum useful power output at 6 Ω** | 50 W + 50 W |
| **Total harmonic distortion at rated power** | 0.09% |

**(RXD-24/M)**

| | |
|---|---|
| **Signal to noise ratio** | |
| **PHONO (MM)** | 66 dB |
| **CD, TUNER, AUX, TAPE** | 86 dB |
| **Input sensitivity/Impedance** | |
| **PHONO (MM)** | 2.5 mV/47 kΩ |
| **AUX** | 150 mV/47 kΩ |

## Graphic equalizer section

| | |
|---|---|
| **Graphic equalizer controls** | |
| **60 Hz, 150 Hz, 400 Hz, 1 kHz, 2.4 kHz, 6 kHz, 15 kHz** | ±10 dB |

## Tuner section

**(RXD-24)**

**FM section**

| | |
|---|---|
| **Tuning frequency range** | 87.5 MHz – 108 MHz |
| **Usable sensitivity (DIN at 75Ω)** | 0.8 μV/15.2 dBf |
| **Total harmonic distortion (at 1 kHz, 65.2 dBf input)** | |
| **MONO 40 kHz DEV 1 kHz** | 0.3% |
| **Signal to noise ratio (DIN weighted at 1 kHz, 65.2 dBf input)** | |
| **MONO** | 71 dB |
| **Stereo separation at 1 kHz** | 40 dB |
| **Frequency response (30 Hz to 15 kHz)** | + 0.5 dB<br>− 2.5 dB |

**MW section**

| | |
|---|---|
| **Tuning frequency range** | 531 kHz – 1,602 kHz |
| **Usable sensitivity** | 14 μV/(500 μV/m) |

**LW Section**

| | |
|---|---|
| **Tuning frequency range** | 153 kHz – 281 kHz |

**(RXD-24M)**

**FM section**

| | |
|---|---|
| **Tuning frequency range** | 87.5 MHz – 108 MHz |
| **Usable sensitivity (IHF at 300 Ω)** | 3.2μV/15.2 dBf |
| **Total harmonic distortion (at 1 kHz, 65.2 dBf input)** | |
| **MONO** | 0.3 % |
| **Signal to noise ratio (at 1 kHz, 65.2 dBf input)** | |
| **MONO** | 78 dB |
| **Stereo separation (at 1 kHz)** | 40 dB |
| **Frequency response (30 Hz to 15 kHz)** | +0.5 dB, −2.5 dB |

**AM section**

| | |
|---|---|
| **Tuning frequency range** | |
| **9 kHz step** | 531 kHz – 1,602 kHz |
| **10 kHz step** | 530 kHz – 1,610 kHz |
| **Usable sensitivity** | 14 μV/(500 μV/m) |

## Cassette Deck Section (RXD-24/M)

| | |
|---|---|
| **Type** | 4 track 2 channel stereo |
| **Heads** | |
| **Playback/Record head (B deck)** | 1 |
| **Playback head (A deck)** | 1 |
| **Erasing head (B deck)** | 1 |
| **Motors** | 1 (each deck) |
| **Fast winding time** | |
| **(A Deck)** | Approx. 100 seconds with C-60 tape |
| **Frequency response (B deck)** | |
| **Normal tape** | 30 Hz to 16,000 Hz ±3 dB |
| **CrO₂ tape** | 30 Hz to 17,000 Hz ±3 dB |
| **Signal to noise ratio** | |
| **Dolby NR ON** | 64 dB (Normal tape) |
| **Dolby NR OFF** | 54 dB (Normal tape) |
| **Wow and flutter** | 0.08% (W.R.M.S.) |

## CD player Section (RXD-24/M)

| | |
|---|---|
| **Rotational speed** | About 200 to 500 rpm (CLV) |
| **D/A conversion format** | 16 bit linear |
| **Over sampling** | 44.1 kHz |
| **Signal to noise ratio (EIAJ)** | more than 90 dB |
| **Dynamic range (EIAJ)** | more than 90 dB |

## General (RXD-24/M)

| | |
|---|---|
| **Power consumption (IEC)** | 120W |
| **Dimension** | W: 360 mm<br>H: 477 mm<br>D: 312 mm |
| **Weight (net)** | 12 kg |

**Note:**
**We follow a policy of continous advancements in development. For this reason specifications may be changed without notice.**

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
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